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Black Gold and Environmental Justice: The Political Ecology of Coal in China and "Global China"

Bowen Gu

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Bowen Gu

Dissertation for the degree of Doctor of Philosophy

Ph.D. Program in Environmental Science and Technology

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Dr. Arnim Scheidel

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Institute of Environmental Science and Technology (ICTA-UAB)

Autonomous University of Barcelona (UAB)

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Preface

Some clarifications may be necessary for the title of this thesis. To start with, I refer to coal as "black gold". Coal, like gold, has been historically valued for its utility in human societies, especially since the industrial revolution. I refer to this old nickname of coal, as it also suggests an important topic of this thesis, on value and values.

During my fieldwork across coal frontiers in China, from coal mines to coal chemical plants, from mountains to rivers, and from villages to cities, banners with the slogan "Clear waters and green mountains are (as good as) mountains of gold and silver (绿水青山就是金山银山)" were omnipresent. The slogan bears the Chinese leadership's ecological civilization ideology and the vision to balance between economic development and environmental protection. However, the realities on the ground are mixed and sometimes conflicted, manifested at coal frontiers that suffer from the enduring social and environmental consequences of the black gold rush.

What is the true cost of coal? How is it valued and by whom? What kinds of values are embedded or lost in the extraction and consumption of coal? How can we preserve the waters and mountains, as well as the livelihoods of people that depend on these, amidst or post the black gold rush?

This thesis attempts to respond to these questions from the lens of environmental justice, which illuminates the social justice dimension in environmental problems. By adopting a political ecology approach, I aim to go beyond the apolitical and technocratic understanding of coal as a source of energy, material, and carbon emissions, and explore the bottom-up social, political, and legal responses to its unevenly distributed socio-environmental and climate impacts.

This thesis also extends to "Global China". In the past decades, China's global rise has led to increasing scrutiny, including on its social and ecological footprints. This thesis makes a modest contribution to the growing "Global China" scholarship and presents the plurality of China's global presence through a grassroots perspective. Following this "Global China" frame, I aim to understand China's overseas presence as embedded in the host country's socio-political context and the global industrial capitalist system, instead of taking a Chinese exceptionalism lens.

The three main chapters of this thesis are based on papers that have been submitted to (Chapter 2 and 3) or already published (Chapter 4) in journals such as Ecological Economics, The Extractive Industries and Society, and Journal of Business Ethics. These papers are complemented in this thesis with case studies (or case vignettes), informed by interviews and fieldwork observations towards the end of each chapter, before the conclusion section.

I hope this thesis, through the lens of coal, makes an original contribution to the scholarship on environmentalism and environmental governance in China, as well as to knowledge co-creation in the transdisciplinary field of political ecology and ecological economics.

Acknowledgements

It takes a village to finish a PhD. In my case, it has taken quite a few, as this journey has taken me to so many places ranging from coal mining towns by the Yellow River to the ecological pig farm in the Bavarian countryside, from Amsterdam to Palautordera, and from Spain to China.

I am especially grateful for the support and advice of three amazing and admirable supervisors, who are also my lifelong role models: Joan Martinez-Alier, Juan Liu and Arnim Scheidel. I would not have pursued a PhD if not for this great "trio". Thank you for your trust from the very beginning, your sharing of knowledge and wisdom, and your patience with me over the years. Thanks Joan for sharing your endless knowledge and occasional humor, and kindly allowing me to take up an academic writing residence at your Escola de Ecologia Politica in Palautordera, to which this thesis is hugely indebted. Thanks Juan for supporting me in different ways across continents, from helping me settle in the program in Spain to sharing your knowledge and experience in China. Thanks Arnim for patiently encouraging and supporting me to progress on the academic path and helping me to gain confidence in this process. I would also like to express my gratitude to the late Antoni Rosell Mele, who had been a supportive tutor until he passed away in December 2021.

I have to anonymize all the interviewees in this thesis to protect the privacy of the interviewees and their organizations. However, I want to acknowledge this thesis as a process and product of knowledge co-production with the communities and civil society organizations. This research would also have not been possible without the trust and support of organizations and communities in China and Indonesia that taught me so much about coal and environmentalism and provided opportunities for me to be "closer to the ground".

I still remember the day when my fieldwork trip was interrupted due to Covid-19 restrictions and I had to rush to the next site by train at midnight. Two volunteers from the organization that I collaborated with at the first site shared with me a pack of facemasks and told me: "Indeed you have to be brave. Once you have scanned the code (due to Covid-19 control requirement, QR code scanning is needed to access every person's location information), there is risk (of being stuck for quarantine) wherever you travel to. If you are afraid, then you can't go anywhere. Just go and see. In the worst case you can come back." Despite the struggles, uncertainties, and fear of undertaking fieldwork during the Covid-19 pandemic, the support of old and new friends, as well as strangers, have warmed my hearts at times of desperation and hesitation.

Having started the PhD during the Covid-19 pandemic has made me appreciate in-person exchanges even more. These include but are not limited to the conferences that I have mentioned at the end of the thesis. I am especially thankful for the experience of attending the Journal of Peasant Studies (JPS) Writeshop in South Africa, which taught me not only about writing and peer review, but also about scholar activism and making impact beyond academia.

During the last year of my PhD, I was fortunate to be part of the Landhaus fellowship at the Rachel Carson Center (RCC) in Munich, Germany. This was a memorable experience, and I am grateful for the company of the other fellows and the valuable intellectual exchanges that took place at the RCC. The library of RCC was a treasure of literature on environmental history, which gave me a different perspective on how the socio-environmental challenges in China have taken similar shapes in other parts of the world. If earlier parts of my PhD made me zoom in, then reading environmental history helped me zoom out, take a distance, and reflect on China's exceptionality and commonality with the rest of the world across time and space.

Pursuing a PhD could be a very lonely journey, which was even more the case during the Covid-19 pandemic. I am thankful for colleagues and friends that have been encouraging and inspiring near and afar, including the EJAtlas team colleagues, my Barcelona and Beijing family, without whom I would not have known about this PhD opportunity, as well as family and friends in Germany and the Netherlands. And special thanks to Denise Matias, without whom I may have not chosen to come to ICTA or survived the bureaucracies for foreigners upon my arrival in Spain.

I am grateful for my family in China that have supported me and my decision to pursue the PhD. My sense of environmental justice could probably be traced to my parents' implicit influence, with their stubbornness and always daring to stand up for justice. Having been born and grown up in a small oil field town in China, my ethnography on fossil fuel frontiers probably started long before my PhD, in compensation for my shortened fieldwork in China due to Covid-19.

I am especially thankful for my mother. With all her strength and courage to fight the cancer, she also accompanied me on several fieldwork trips and shared her knowledge as a history teacher.

I am also grateful for the funding schemes that have made this PhD possible, including the Ministerio de Economía y Competitividad (MINECO) grant from the Spanish government and the ICTA-UAB "Maria de Maeztu" Programme for Units of Excellence of the Spanish Ministry of Science and Innovation (CEX2019-000940-M). I have also benefited from grants that supported my fieldwork, summer courses and research visits (more details in the last section of the thesis).

Last but not the least, I want to thank my partner Karsten for having accompanied me through the ups and downs of this journey. Thanks for being supportive of my ambitions, which sometimes kept us temporarily apart but made us stronger in pursuit of this lifelong partnership. Your trust and patience, as well as your Köhler alarm, means a lot to me. I hope you would never regret having encountered this so-called "sustainability researcher".

Some people have shaped their PhD projects, whereas in my case, I have been significantly shaped by this PhD to see my homeland and the world through the lens of a "black stone". It has helped me reconnect with my birth country from a grounded perspective and approach, which was my main goal when I decided to pursue this PhD after having lived outside China for almost a decade.

I am truly grateful for this journey.

Abstract

Coal, also called “black gold”, has been fueling the growth and development of China. However, the rapid growth of China’s coal-based economy has been achieved at the price of environmental and social liabilities. In recent years, the unequal distribution of the environmental, social, health and climate impacts of coal has been increasingly recognized. While existing studies have mainly looked into the socio-environmental impacts of coal in China from the macro perspective, only little empirical research has examined the ecological distribution conflicts arising due to these impacts across the coal value chain. Through the lens of comparative political ecology, this thesis contributes to filling this gap with a focus on coal-related socio-environmental conflicts in China, including legal mobilizations through public interest litigation (PIL), and in areas influenced by Chinese investments, with Indonesia as a case study country.

The thesis builds upon empirical data from the Global Environmental Justice Atlas (EJAtlas) and legal proceedings, combined with fieldwork across multiple coal frontiers, participant observation at court hearings in China, remote interviews and secondary data. I have contributed to adding or revising more than 60 EJAtlas case entries, most of which were included in the analysis in this thesis. The discussions address the various forms of socio-environmental conflicts aggravated by the development of the coal value chain in China, as well as the unequal and inadequate compensation for the damage caused to incommensurable values. It also discusses how grassroots environmental activism may contribute to sustainability transitions in China’s coal-based economy.

Further, this thesis examines China’s overseas investment in the coal sector. Despite China′s commitment to greening the Belt and Road Initiative (BRI) and phasing out overseas coal investment, the socio-environmental impacts of the projects that are already planned, under construction, or in operation are expected to remain. This has led to resistances from local communities and civil society in BRI countries such as Indonesia, the top recipient of Chinese coal financing. Through a systematic mapping of socio-environmental conflicts over coal-fired power plants (CFPPs) with Chinese investment in Indonesia, this thesis addresses the lasting environmental, health and socio-economic impacts of energy infrastructure that are inextricably intertwined with extractive industries, including coal and nickel, and discusses the power relations that have shaped socio-environmental conflict dynamics. It reinforces the call for a research agenda on the BRI that considers not only the China-side perspective, but also the local socio-political dynamics, including the politics from below, that shapes the vision and frictions of a “Green Belt and Road”.

Key words: Coal, China, Indonesia, ecological distribution conflict, environmental justice, languages of valuation, public interest litigation

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Chapter 1. Introduction

This chapter provides an overview of the thesis, including the background, research objectives, methodology and a preview of the following chapters.



The coal mining and coal-fired power landscape along the Yellow River in Wuhai (乌海), which literally means "a sea of black gold (乌金之海)" in Chinese. Photo credit: Bowen Gu (2021).

1.1 Background

Coal has a long history in China. Historical sources indicate that the Chinese already started using coal for heating and smelting in the Warring States Period around 2500 years ago (Freese, 2016). China remained the world's largest coal producer and consumer before the invention of the steam engine in 1769 and the Industrial Revolution (Thomson, 2003). In modern China, coal is very widely used for heating, electricity generation, and as an essential material in the production of cement, steel and other industrial processes (Wright, 2012).

Coal, like other fossil fuels, is the product of photosynthesis from the distant past. Once it enters the economy and is burnt, its energy dissipates (Martinez-Alier, 2023a). Even a non-growing economy, if based on fossil fuels, would need to continuously search for extraction and waste disposal frontiers (Moore, 2000; 2015) to get new supplies. In China, the world's oldest and largest coal producer and consumer, this need for material and energy use has continuously increased alongside the aspiration for economic growth and given rise to expanding coal extraction frontiers. While the supply-side reform and the closure of small-scale coal mines have led to temporary downscale of coal production and consumption during the 2010s, the black gold rush has returned after the Covid-19 pandemic, with coal still accounting for more than 50 per cent of China's energy source (Champenois et al., 2023; Wang et al., 2022).

This coal-fueled development comes at a social and ecological price, which mainstream economists may refer to as "externalities" (Mao et al., 2008; Teng, 2012). Instead of being internalized into the market price of coal, these socio-environmental burdens have been shifted disproportionally towards communities and workers at the coal extraction and waste disposal frontiers. Moreover, with coal being the world's largest energy-related source of CO2 emissions, China's continued dependence on coal poses a significant threat to domestic and global decarbonization prospects (He et al. 2020).

The cover photo of this chapter was taken in Wuhai, which bears the meaning of "a sea of black gold (乌金之海)". It exemplifies the coal extraction frontiers that are the foundation of the "coal and iron complex" (Mumford, 2010) that we inherit and inhabit. A documentary named *Behemoth* (2015) based on Wuhai depicts how the digging of coal, or "black gold", and the coking industry, led to continuous explosions, destroyed grasslands, atmospheric pollution, wasted water and dusted

lungs. The documentary also shows the uninhabited ghost cities built upon the wealth accumulated from the black gold rush.

To some extent, *Behemoth* provides a glimpse of the unevenly distributed environmental and social costs of coal. The negative and uneven impacts of such extractivism can be interpreted as a form of "internal colonialism", as argued in India for the states of Chhattisgarh, Jharkhand and Odisha (Martinez-Alier, Demaria, et al., 2016; Saes & Bisht, 2020). Different social and political reactions arise locally in the form of socio-environmental grievances, claims and movements because of environmental and health impacts, and also at the global level because of CO2 emissions and climate change. The main hypothesis of this thesis is that this also happens in China, though potentially in different forms constrained by political opportunity structures (Tarrow, 1989, 1998), as also in countries such as Indonesia where Chinese investments in the coal sector have taken place. In Indonesia, we shall see, it is remarkable that some of the CFPPs are built also to fuel the processing of nickel, an essential mineral for the so-called "energy transition".

Such facts can be understood in terms of what James O'Connor (1988) termed the second contradiction of capitalism. According to O'Connor (1988), the capitalist industrial economy undermined its own conditions of production, including the exhaustion of natural resources and various forms of pollution, which lead to social movements that are considered "the environmentalism of the poor" (Martinez-Alier, 2002, 2023b). These movements challenge the unsustainable industrial economy, and thus may positively shape the governance of resource use from below (Gobby et al., 2021; Scheidel et al., 2018).

Following and also questioning this frame, this thesis is a modest contribution to the analysis of the links between economic growth and changes in social metabolism (e.g., increased use of coal in China), the perception of environmental and health damages (the undermining of local livelihoods), and the rise of socio-environmental conflicts, including those on climate change.

1.2 Research objectives

This thesis started with a general interest in applying the lens of political ecology and ecological economics to investigate the role of coal-related socio-environmental conflicts in China and areas under China's economic influence, e.g., the countries and regions covered under the Belt and Road

Initiative (BRI). The objectives were and remain ambitious. As the research evolved, new themes such as public interest litigation (PIL) have emerged in response to the research objectives.

The main research question of my thesis is: To what extent does grassroots activism influence the sustainability dimensions of China's coal-based economy and overseas engagement?

The sub-objectives include:

Objective 1: Analyze the effect of coal-related grassroots activism in China.

Objective 2: Discuss the role of legal mobilization, in particular NGO-led public interest litigation, in coal-related grassroots activism and environmental governance in China.

Objective 3: Analyze the effect of grassroots anti-coal activism in broader regions under China's economic influence, e.g., the countries and regions covered under the BRI, with Indonesia as a case study country.

The three main chapters of the thesis are built upon specific research questions that address these objectives. The structure of the thesis and the research questions covered in each chapter are further elaborated in section 1.5.

1.3 Common conceptual frameworks

As the thesis is built upon three independent research articles, the concepts and methods are introduced in detail in the following chapters respectively. This section briefly introduces the common conceptual foundations situated at the intersection of political ecology and ecological economics.

Political ecology

In *Carbon Technocracy*, Seow (2021) brought to light the technocratic culture in the coal mining sector in East Asia, especially China. However, the socio-environmental changes and conflicts cannot always be resolved by technological solutions as technocrats would assume. In many cases, despite the availability of technological solutions, socio-environmental conflicts have arisen due to local governments' political and financial stake in the industry or unequal allocation of resources.

In contrast to "apolitical" approaches such as modernization towards the environment, political ecology interprets environmental changes and ecological conditions as a result of political processes subject to the influence of political economic forces (Leff, 2021; Robbins, 2019). This provides an entry point for understanding how environmental conflicts are shaped by competing values and power relations. This is especially helpful in understanding the socio-ecological changes brought about by the coal sector in China, ranging from coal mining to coal-fired power infrastructure.

Energy use goes together with economic growth. This answers the famous question "Where is the ecology in political ecology?" (Vayda & Walters, 1999; Walker, 2005). But where is the politics in political ecology? From the lens of political ecology, energy infrastructure projects are a product of social relations. Energy transition is not only technoeconomic, but also deeply social and political (Sovacool et al., 2022; Temper et al., 2020). This calls for a transdisciplinary political ecology perspective to investigate and understand the social movements and environmental conflicts active in the energy transition process.

Ecological economics

Ecological economics was established to provide a systemic view of the relations between the economy and environment (Costanza et al., 2015; Martinez-Alier, 2002). In ecological economics, the approach of "externalities as market failures" has been contested by the theory of systematic cost shifting (Kapp 1975; Martinez-Alier 2002). As Martinez-Alier (1995b, p. 71; 1995a, p. 513) argued, "the value of perceived negative externalities is a product of social institutions and distributional conflicts" and "the issue cannot be resolved by bringing externalities into surrogate markets".

The growing and changing metabolism of the economy in terms of energy and material flows has given rise to an increasing number of distributional conflicts, which are not only economic, but also ecological and cultural (Escobar 2008; Martinez-Alier 2002). Bridging political ecology and ecological economics, the term "ecological distribution conflict" (hereafter EDC, used interchangeably with socio-environmental conflict, environmental conflict, or ecological conflicts) was coined by Martinez-Alier and Martin O'Connor (1996) to describe the social conflicts emerging over the unequal distribution of environmental burdens and benefits, such as the uneven

exposure of diverse social groups to pollution, or their loss of access to natural resources such as land. In essence, the ecological distribution conflicts and the growing and changing social metabolism are two sides of the same coin (Tetreault, 2022).

The concept of EDC has been widely used in ecological economics to analyze the struggles over multiple, incommensurable values attached to the environment, which become visible through social mobilizations and conflicts (Martinez-Alier et al., 2010b). Compared to "economic distribution conflicts" over profits, prices or rents, EDCs cannot be necessarily resolved through economic means, such as monetary compensation, fair rent distribution, or correct prices, nor can they be understood adequately through an economic lens of analysis.

Environmental justice

"Political ecology stories are stories of justice and injustice", argues Robbins (2004, p. 87). This points to the overlap of political ecology narratives and those of environmental justice, which understands environmental changes and conflicts as a result of the uneven distribution of environmental benefits and burdens. The concept of environmental justice focuses on distributional issues as well as the recognition of diverse values and worldviews at play in conflicts and procedural fairness in decision-making (Schlosberg, 2004, 2013). The concept of environmental justice offers a useful lens to understand the underlying reasons (i.e., environmental injustices) of why ecological distribution conflicts emerge, as well as the incommensurable values that different actors hold towards the environment. This three-pillar framework was later extended to include capabilities as the fourth aspect inspired by Amartya Sen and Martha Nussbaum, which refers to the freedoms that people have to achieve their desired functionings (Schlosberg, 2007). The capabilities conception of justice provides a link between the pillars of distribution, recognition and procedural justice (Schlosberg, 2007). It also helps to understand the grievances expressed in ecological distribution conflicts, such as the loss of access to clean air, water and land, as well as incommensurable values such as traditional culture and livelihoods, as a form of multidimensional poverty, which, according to the capability approach, refers to the deprivation of multiple freedoms that "people value and have a reason to value" (Alkire, 2007).

Environmental justice has inspired a number of related concepts, such as energy justice, water justice, climate justice, and blue justice. Energy justice applies the justice principles to energy

production and consumption as well as energy policy (Jenkins et al., 2021; Sovacool et al., 2017). Healy et al. (2019) coined the term "embodied energy justice" to include considerations of hidden and distant upstream and downstream injustices in the extraction, processing, transportation and disposal of energy sources, which is also useful for understanding, for example, the various injustices embedded in the energy infrastructure with Chinese overseas investment. The environmental justice concept has also extended to the climate field and given rise to the notion of climate justice, which was first coined from the lens of intergenerational justice by Weiss (1989) and increasingly adopted by social movements (CorpWatch, 1999; Schlosberg & Collins, 2014). In China's context, the discussion of climate justice goes beyond inter-nation and inter-generation dimensions, and has its implications within the nation, where there has been a lack of recognition of the unequal distribution of climate impacts shouldered by vulnerable groups and communities (Cao, 2016; Wu, 2019).

Existing studies that examine environmental justice concerns from China's perspective have focused on three main characteristics that resonate in the coal commodity chain: east-west regional environmental disparity, urban-rural environmental disparity, and the vulnerability of certain marginalized groups, e.g., migrant workers, to environmental risks (Liu, 2012; Mah & Wang, 2017, 2019). From the perspective of public interest litigation, scholars referred to "Confusian justice" to differentiate the Chinese understanding of justice from the Western liberalism justice tradition and highlighted the importance of collective interest rather than the fair treatment of individuals in China's context (Wang & Lo, 2022, 2023). Studies also highlighted how the pre-existing regional disparity faced by coal-rich provinces in China has been intensified in the low-carbon transition process, e.g., in coal-to-gas heating projects and the closure of private and state-owned coal mines (Hu, 2020, 2023; Lo, 2020; Wang & Lo, 2023). These studies have illustrated the plurality of environmental justice conceptions when applied to specific locations and commodity chains and point to the importance of adapting the environmental justice framework to China's complex and culturally diverse context. Wang and Lo (2023), upon reviewing the energy and environmental justice scholarship in the Chinese context, also suggests that more critical engagement with the concept of power is needed through applying the political ecology approach to China's context and through a multi-scalar lens to recognize the local, regional and global linkages in environmental injustices.

Scholars have pointed out that the adoption of the environmental justice discourse beyond academia (e.g., in civil society, government policy and media report) remains rare in China (Mah & Wang, 2017; Wang & Lo, 2023). In contrast, environmental justice actually developed its roots outside academia in the 1980s, with one of the first environmental justice movements having taken place at Warren County in North Carolina in 1982, where a predominately African-American community was protesting against the decision of a hazardous waste landfill that contained polychlorinated biphenyl (PCB) (Bullard et al., 2008). The Warren County protests gave rise to a national environmental justice movement, which also led to governmental attention and response. Since then, the notion of environmental justice has been widely used in environmental movements around the globe to support marginalized and impoverished groups in their social and environmental struggles. Bridging between academia and practice, Schlosberg and Collins (2014) called for a closer look at environmental and climate justice movements and the demands of civil society that may challenge the discourses of justice in academia. This thesis is also a response to this call and contributes to the environmental justice literature by illustrating the grassroots environmental justice concerns that have emerged across China's coal commodity chain from coal extraction to waste disposal frontiers and the implications these may bring for sustainability transitions in China.

1.4 Materials and methods

1.4.1 Research design overview

As the following three chapters each has a section on materials and methods, this section will only provide an overview of the general research design and the commonly adopted materials and methods. This thesis has deliberately chosen a predominantly qualitative approach combined with multiple case study analysis (Yin, 2014). Existing studies have adopted large-n statistical approach to investigate related issues, such as the socio-environmental impacts of the coal value chain and environmental perceptions of mining region communities, as well as Chinese overseas investment. This thesis builds upon the broad and macro-level understanding of related topics and attempts to develop further understanding of the socio-political dynamics of environmental conflicts through a qualitative approach. It also facilitates research flexibility and adaptation in the fieldwork, through asking open-ended questions or semi-structured interviews as discussed further in this section.

1.4.2 Comparative political ecology: EJAtlas as a method

The data and methods of analysis used in this thesis are closely linked to the Global Atlas of Environmental Justice (EJAtlas). The EJAtlas is an open-access online map and database hosted at the Institute of Environmental Science and Technology at the Autonomous University of Barcelona (ICTA-UAB). The development of the EJAtlas is built upon collaboration with activists, civil society organizations and academics from around the world, a process termed as knowledge co-production between academics and activists (see Temper et al., 2015; Scheidel, 2023 for more details on the methodology of the EJAtlas). It was established as part of the EJOLT (Environmental Justice Organisations, Liabilities and Trade) project in 2012 and is considered as an "incomplete inventory" which continues to grow (Martinez-Alier et al., 2016). It covers around 4,000 cases as of March 2024 (EJAtlas, 2024).

While the EJAtlas is not strictly a method *per se*, I want to highlight the process of engaging with the platform and database as a unique and important part of this thesis project. This includes a combination of searching for and documenting case studies in the EJAtlas, using its variables for content analysis and comparative analysis, as well as adapting the variables in the analysis to the specific context of the research. In summary, the EJAtlas has served as a source of reference, as a database with pre-determined variables for comparative analysis, and as an invitation to communities and civil society organizations for knowledge co-production. Since 2020, I have contributed to adding or revising more than 60 case entries in the EJAtlas as part of my PhD research.

In the process of documenting EJAtlas cases, I relied on multiple types of information sources to be informed by diverse narratives on coal-conflicts and related events, which helps reduce biases as much as possible. The moderation by a core team of moderators ensures the quality of each case entry in the EJAtlas. The standardized list of variables enables the comparative analysis that is adopted in this thesis. It brings to light not only the varieties of social mobilizations in terms of actors, repertoires of action and outcome, but also the different forms of corporate social irresponsibility and the interaction between state and non-state actors. *Table 1-1* provides an overview of the main variables that have been used in the comparative analysis of ecological distribution conflicts in this thesis.

Table 1-1 Overview of EJAtlas fields utilized in comparative political ecology analysis (adapted from Temper et al. 2015)

Category	EJAtlas field	Main use in this thesis
Geographic information	Geo-referenced location	- Screening of cases in China and Indonesia - Analysis of the geographical distribution of conflicts (province, rural/urban) - Map creation
	City/town	
	Province	
	Country	
	Type of population involved (urban, semi-urban, rural)	
Source of conflict	Category of conflict (1st level)	- Screening of cases in the coal commodity chain (coal mining, coal-fired power plant, coal chemical, coking) - Content analysis based on case description
	Sub-category of conflict	
	Commodity	
	Description of the conflict	
Project details	Description of the project	- Analysis of project scale and company involvement - Quantifying outcomes (e.g., suspended capacity, avoided emissions)
	List of companies involved	
Actors	List of governmental actors involved	- Analysis of the involvement of State-owned Companies (SOEs) and private corporates - Screening of projects with Chinese investment in Indonesia and the BRI
	List of international finance institutions	
	List of Environmental Justice Organizations involved	
Conflict and mobilization	Intensity (e.g., Low, Medium, High)	- Analysis of the repertoires of contention - Analysis of the key actors of mobilization - Tracing the evolvement of environmental conflicts from a temporal perspective
	Reaction phase (e.g., preventive, reactive, reparative)	
	Groups mobilizing	
	Forms of mobilization	
	Start and end date of the conflict	

Impacts (reported and potential)	Environmental impacts	- Summary of main grievances of communities and civil society organizations
	Health impacts	
	Socioeconomic impacts	
Outcomes	Project status (e.g., in operation, stopped)	- Analysis of mobilization outcomes - Analysis of avoided or delayed emissions based on projects stopped or suspended
	Conflict outcomes and responses (e.g., compensation, court success)	
Sources and materials	References used to gather data	- Analysis of artistic and cultural expressions - References
	Photo and cultural expressions	
Meta information	Headline text	- Case summary - Case identifier
	Case ID	

1.4.3 Multi-sited fieldwork from below: follow the coal

"Follow the thing" type of multi-sited ethnography has been applied in anthropology and political ecology (e.g., Cardoso, 2018; Healy et al., 2019; Tsing, 2021). Multi-sited and itinerant ethnographic experience contributes to gaining a "multiplicity of perspectives on the same issues through interactions with actors that were entangled in similar processes despite their apparent distance" (Marcus, 1995; Rippa, 2020, p. 17). It has also been applied in influential studies on Chinese rural politics and environmental sociology (e.g., Cao, 2000; Lora-Wainwright, 2021; Mertha, 2010; O'Brien & Li, 2006).

I conducted multi-sited fieldwork with major constraints and uncertainties posed by the Covid-19 pandemic. The fieldwork was divided into two parts before and after the Chinese government loosened domestic Covid-19 control policies. Between July and November 2021, I travelled across the Yellow River Basin, which is home to more than 70% of China's coal production, to major coal frontiers in Inner Mongolia, Shanxi and Shaanxi in northern China (see *Figure 1-1*). The Covid-19 control situation in 2022 made it almost impossible to travel to and within China. As a result, I only managed to travel to China again in 2023, and conducted brief fieldwork trips in

Anhui, Guizhou and Hebei Province, including interviews and attending public interest litigation court hearings.

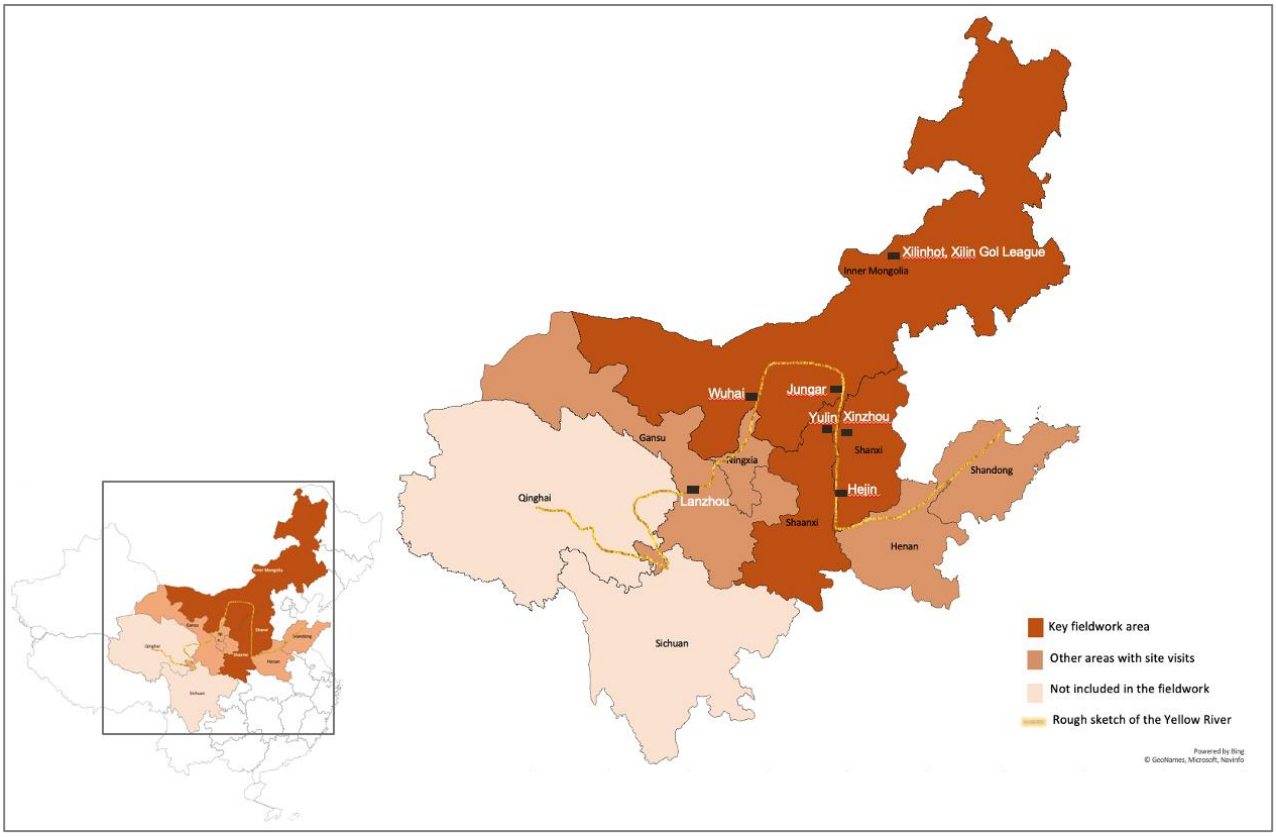


Figure 1-1 Map of multi-sited fieldwork conducted in 2021 mainly along the Yellow River (fieldwork sites marked in white color)

The multi-sited fieldwork seems fragmented, yet different sites are connected through the coal commodity chain. Traveling along the Yellow River also helped me forge a relationship with the natural environment, or the "landscape ecology" aspect in political ecology (Scheidel et al., 2022). The flowing nature of the river, and the static yet dynamic nature of coal (because of the commodity chain and the change of local communities' livelihoods and culture) were brought together in the multi-sited fieldwork. The process also sheds light on the dynamics and connections that would otherwise be left out of sight (Rippa, 2020). For example, coal is sometimes extracted and burnt at a location in proximity of the coal mine in the case of mine-mouth power plants, while the electricity is transmitted through the mass-scale transmission system to broader regions across the country.

In *China along the Yellow River,* Cao (2006; 2000) discussed two distinct approaches of doing fieldwork in China: one "from above", which relies on higher level government or institutional connections, and one "from below", which uses personal ties (私人关系) to access the rural community especially in inland areas. Cao (2000) suggests this approach of relying on personal ties as a method with Chinese characteristics, considering the Chinese society's emphasis on "relationship" and "reciprocity". Similar to what Cao (2000) reported on the use of friends' and family's network, I relied primarily on personal connections and collaboration with NGOs that had prior contacts with local communities and expertise in the environmental and public health field, to access interview opportunities. Doing fieldwork from below echoes what Cao brought to light 20 years ago but it became more complicated during the major period of this research between 2020 and 2023 with the Covid-19 pandemic and China's stringent control policies sustaining for three years. It required more patience and trust building, as well as swift adaptation to the uncertainties. However, this approach can help "preserve the reality of the field ("保存现场" as Cao wrote in Chinese) and avoid the potential disorientation from the reality and objectivity due to the company of government officials (Cao, 2000, p. 2; Lora-Wainwright, 2021).

In order to conduct the fieldwork from below, it is equally important to have a strong understanding of the politics from above. For example, studying "environmental conflict", despite its possibilities for reinforcing environmental protection and sustainability that align with the central government's policy direction, can be considered sensitive in a context where social stability is among the highest political priorities. Both companies and communities would shy away from discussions on "conflict". However, state-led initiatives such as green mining, ecological recovery, land reclamation, and rural revitalization became feasible entry points for interviews and site visits. On certain occasions, I also had the opportunity to meet with and interview state-owned enterprise representatives and local government officials, which complemented (or sometimes contrasted with) the discussions with local communities and NGOs.

1.4.4 In-person and remote interviews

To complement the environmental conflict data with further contextual information, semi-structured interviews were conducted both remotely and in-person between 2020 and 2023. The interviewees include community members, NGO representatives, lawyers, government officials, and companies involved in the cases under analysis. The purpose of these interviews was to gather

information related to the cases that would supplement the secondary data from publicly available sources and deepen the author's understanding of the socio-political context of the coal commodity chain in China and Indonesia.

The remote interviews served as an alternative to in-person meetings during the Covid-19 pandemic (see Lupton et al. 2021). Despite the uncertainties and challenges posed by the pandemic, the flexibility of time and location in the setup of remote interviews has enabled me to interview stakeholders that would not be accessible for in-person meetings.

For many China scholars that could not travel to the country during the three years under strict Covid-19 control, "WeChat ethnography" has emerged as a new method (Bugnon & Chen, 2024). My multi-sited fieldwork also extended to the virtual space of WeChat, with encounters through messages, audio or video chats, and group chats, as well as articles published (or in some cases censored and dissapeared) in public accounts. WeChat (微信) is a multipurpose application, with one of its functions being instant messaging similar to Whatsapp. One can set up or be invited to WeChat groups, which is a virtual space for people to socialize. In addition to being used for private connections such as family members and friends, WeChat groups are also widely used for work, e.g., by colleagues that are part of the same project. Besides, individuals and organizations, including public and private entities, can publish news and articles to be distributed to the broader public through setting up WeChat public accounts (微信公众号). While WeChat becomes an almost inevitable tool for accessing information and conducting virtual fieldwork in China, scholars also cautioned about the ethical dilemma due to censorship and surveillance concerns (Kefala, 2023; Svensson, 2017). Such concerns can also go beyond the virtual space. For example, on one occasion during an in-person interview, my interviewee requested that both of us turn off our mobile phones during the interview out of his concern for surveillance. When conducting virtual interviews, I mostly relied on non-WeChat applications such as Zoom and only used WeChat when no alternative was available for the interviewee. On the other hand, I relied on WeChat groups to follow the process and progress of public interest litigations, which is further elaborated in a case study in section 3.6.1.

It is worth noting the difference between conducting remote interviews with stakeholders in China and Indonesia. The remote interviews with stakeholders in Indonesia have opened up more conversations as the interviewees were willing to share their grassroots struggles and insights. In

China's context, remote interviews have been more challenging, with a general attitude of "self-censorship". Even during in-person interviews and at fieldwork sites, my identity has been repeatedly questioned, especially in places where environmental conflicts had taken place and villagers had experienced repression or retaliation. In order to protect the privacy of the interviewees and their associated organizations, details regarding some specific locations and interviewees have been omitted in this thesis.

1.5 Thesis structure

This section provides a preview of the following chapters of this thesis. The three main chapters of this thesis are based on papers that have been submitted to or already published in peer-reviewed journals. The objectives, research questions and data scope of the three following chapters are summarized in *Table 1-2*.

Chapter 2 provides an overview of how ecological distribution conflicts in China take shape based on a comparative political ecology analysis of 30 cases in the EJAtlas across the coal sector (coal mining, coal-fired power, coking and coal chemical) informed by fieldwork across coal frontiers in China. The comparative analysis is supported with two case studies to show the varied outcomes and impacts of different forms of mobilization and how these might possibly contribute to the sustainability transitions of China's coal-based economy.

Chapter 3 takes a deeper dive into public interest litigation as an emerging approach for civil society organizations to participate in the anti-coal activism in China. It presents the results of comparative political ecology analysis of 64 public interest litigation cases across the coal sector and demonstrates the contrasts among the valuation languages deployed in and outside the courtroom. This is complemented with three case studies that showcase the valuation contests that come to light in the litigation process.

Chapter 4 focuses on Indonesia to examine the environmental justice implications of "Global China". This chapter brings to sight how Chinese investment in the coal-fired power infrastructure is perceived and contested from the grassroots based on 25 empirical cases from the EJAtlas and insights from interviews with local and international stakeholders. It presents how the Belt and Road Initiative is not only designed by top-down vision, but it is also influenced by the politics

from below. The chapter makes a call for integration of environmental justice, in particular blue justice, in BRI governance.

In Chapter 5, I conclude the thesis with a review of the main transversal findings, including a tentative comparative perspective between domestic China and "Global China".

Table 1-2 Overview of the objectives, research questions and data scope of main chapters

Chapter	**Research objectives**	**Research questions**	**Data scope**	**Dissemination**
Chapter 2	Provide an overview of ecological distribution conflicts related to the coal sector in China	(1) How does unequal distribution of socio-environmental impacts across the coal commodity chain take shape in China? (2) To what extent and through which means are such unequal/unjust distributions contested from the bottom up? (3) How, if at all, do these bottom-up complaints and initiatives influence the sustainability dimensions of China's coal-based economy?	30 coal conflict cases in China, registered in the EJAtlas	- International Conference on the Chinese Development Model at Ramon Llull University, Barcelona (2022) - Journal of Peasant Studies (JPS) Writeshop, Cape Town, South Africa (2022)
Chapter 3	Analyze the role of legal mobilization, specifically public interest litigation, in coal-related ecological distribution conflicts in China	(1) To what extent are public interest litigations filed in the coal value chain in China? (2) What forms of corporate social irresponsibility do public interest litigations reveal in the coal value chain? (3) To what extent have public interest litigations elicited the recovery of public interest, including the compensation of ecological damage and social costs? (4) What valuation languages are used in such compensation?	64 public interest litigation cases from the People's Court Announcement and China Judgements Online Database	Tarragona International Environmental Law Colloquium (TIEC) (2022)
Chapter 4	Provide an overview of socio-environmental conflicts related to coal-fired power infrastructure with Chinese investment in Indonesia	(1) How does the unequal distribution of socio-environmental impacts manifest in the Chinese-sponsored coal-fired power plant projects in Indonesia? (2) To what extent and how are the unequally distributed socio-environmental impacts contested from the bottom up? (3) How do bottom-up initiatives influence both the sustainable energy future of the host country and the "green BRI" agenda?	25 coal-fired power plant related conflict cases in Indonesia, with Chinese financing and/or contractor involvement, registered in the EJAtlas	- Summer course Political Ecology of Scarcity, Limits and Degrowth at NMBU, Norway (2022) - Workshop Silk Road Cities and beyond: New dialogues on the urban geographies of infrastructure-led development, ICTA-UAB (2023)

Chapter 2. Coal and Environmental Justice in China

This chapter provides an overview of coal and environmental justice in China, based on an examination of 30 ecological distribution conflicts in the Global Atlas of Environmental Justice. Two brief case studies complement the discussions and draw on insights from the fieldwork. The chapter is adapted from the paper "The black gold rush: environmental justice on the coal frontiers in China" submitted to the journal *Ecological Economics*, with myself as the first author and my supervisors Arnim Scheidel, Juan Liu and Joan Martinez-Alier as co-authors.



As shown in the photo, sculptures of sheep were placed on the grassland in Huolingguole City in Inner Mongolia, as silent witnesses to the pollution and destruction caused by the coal sector in the area that has disrupted and displaced communities and their livestock. Photo credit: Lu Guang/Greenpeace, 2012

Abstract

Coal, also called “black gold”, has been fueling the growth and development of China. However, the rapid growth of China’s coal-based economy has been achieved at the price of environmental and social liabilities. In recent years, the unequal distribution of the environmental, social, health and climate impact of coal has been increasingly recognized and has manifested through a growing number of conflicts on the coal frontiers. Different stakeholders have turned to various approaches to contest projects, thereby shaping future pathways of China’s coal economy. While existing studies have mainly looked into the external cost of coal in China from the macro perspective, only little empirical research has examined the ecological distribution conflicts arising due to the socio-environmental impacts across the coal value chain. Here I analyze 30 coal-related conflicts in China through the lens of comparative political ecology. I use empirical data from the Global Atlas of Environmental Justice combined with fieldwork across multiple coal frontiers in China, remote interviews and secondary data to discuss the social-ecological impacts of coal conflicts, the actors involved, as well as the strategies employed to contest and transform the conflictive coal economy towards a more just and sustainable one. The chapter addresses the emerging agrarian struggles aggravated by the development of the coal value chain in China, as well as the unequal and inadequate compensation for the damage caused to incommensurable values. It also demonstrates how environmental activism may contribute to influencing the sustainability dimensions of China’s coal-based economy.

Keywords: Coal; China; EJAtlas; environmental activism; ecological distribution conflict

2.1 Introduction

Coal, also called “black gold”, has been fueling the growth and development of China, comprising over 50% of the country’s primary energy supply (IEA, 2023). However, the rapid growth of China’s coal-based economy has been achieved at the price of unequally distributed environmental and social liabilities. In recent years, the unequal distribution of the environmental, social, health and climate impact of coal has been increasingly recognized and manifested through a growing number of conflicts on the coal frontiers and beyond (Yang & Ho, 2018). Different stakeholders have contested coal-related projects, for example, pastoralists affected by coal mines in Inner Mongolia, fishermen concerned by the construction of a coal-fired power plant (CFPP) in Hainan, and peasants displaced due to land subsidence in Shanxi (EJAtlas, 2019d, 2019c, 2021a). In their struggles against coal, the involved actors have turned to various forms of contestation, ranging from direct confrontation, over artistic interventions, to legal actions such as public interest litigation (PIL), and more recently the scheme of Environmental Inspection led by the Central Government (EICG).

Previous studies have suggested, conceptually and empirically, that such ecological distribution conflicts (EDC, often used interchangeably with terms such as ecological, environmental or socio-environmental conflicts), and the associated social mobilizations and movements for environmental justice could form an important force for sustainability and a just energy transition (Apostolopoulou et al., 2022; Scheidel et al., 2018; Temper et al., 2020; Thiri et al., 2022). Martinez Alier (2021a, 2023a) portraited a number of successful bottom-up anti-coal movements around the globe, which are considered as part of the broader “leave fossil-fuel underground (LFFU)” movements, highlighting that stopping 50 CFPPs of 1,000MW would be equivalent to avoiding the emissions of a country similar to the size of France or Italy. Dissent on coal is especially important for developing countries exploring a pathway towards sustainable and just energy transition with multi-stakeholder support (Cardoso & Turhan, 2018; Delina, 2021). However, existing literature on anti-coal movement has primarily focused on the Global North and a few coal-rich countries in the Global South, e.g., India and Indonesia (Brown & Spiegel, 2017; Fünfgeld, 2019; Roy & Schaffartzik, 2020). A recent global literature review (Thiri et al., 2022) highlighted the research gap on social movements concerning fossil fuels in East Asia, Eastern Europe and Africa, especially in high-emitting countries such as China. This raises the question of whether there is a lack of coal dissent from the bottom up, or whether coal dissent in China, in

contrast to the broader anti-coal and climate movements in the Global North, may have taken a "stealthy" approach (Lin & Peel, 2021; Roy, 2021) under claims such as environmental pollution.

This chapter aims to fill this gap by addressing the following questions: How does unequal distribution of socio-environmental impacts across the coal commodity chain take shape in China? To what extent and through which means is it contested from the bottom up? How, if at all, do these bottom-up complaints and initiatives influence the sustainability dimensions of China's coal-based economy? By combining perspectives from political ecology and ecological economics (Villamayor-Tomas & Muradian, 2023), this chapter conducts a comparative analysis of 30 coal-related ecological distribution conflicts documented in the Global Atlas of Environmental Justice (EJAtlas). These cases include conflicts over coal mining, coal-fired power plant, coking and coal chemicals, and draw insights from my fieldwork at major coal frontiers in China, remote interviews and secondary data.

The chapter contributes to key debates and questions in ecological economics. First, it discusses how conflicts over resource extraction and processing take shape not only as economic conflicts, but also as ecological distribution conflicts in which incommensurable values are voiced by diverse stakeholders through non-economic valuation languages (Martinez-Alier et al., 2010a; Martinez-Alier & O'Connor, 1996). Despite China's enormous weight in both economic and biophysical terms in the global economy, this issue has remained so far largely unaddressed for this geographic region. Second, the chapter sheds light on the diverse roles that environmental activism, resistances, and social movements may play in shaping sustainability pathways (Pelenc et al., 2019; Thiri et al., 2022). This is particularly important to understand for the case of China, the world's largest producer and consumer of coal, due to its relevance for achieving global climate mitigation goals (Springer et al., 2022). As the Chinese government committed to its "dual carbon" climate goals, including peak carbon by 2030 and carbon neutrality by 2060, understanding and addressing ecological distribution conflicts in the coal value chain is important for exploring a pathway towards just energy transition and ecological civilization with multi-stakeholder support (He et al., 2020; Shapiro & Li, 2022). In summary, the chapter aims to contribute to the literature on ecological distribution conflicts and environmental justice in China, and more broadly to a better understanding on the role of social movements in sustainability transitions.

This chapter is organized as follows. Section 2.2 provides an overview of the socio-economic and political background of the coal sector in China. Section 2.3 outlines the concepts, methods and materials used in this chapter. Section 2.4 presents the results of analysis and discussions. Section 2.5 presents two case studies to complement the discussions. Section 2.6 concludes.

2.2 The landscape of coal in China

In the past decades, China has grown into the world's largest energy consumer as well as the largest producer and consumer of coal (Springer et al., 2022). From 1990 to 2018, China increased its coal consumption from 0.99 billion tonnes to 4.64 billion tonnes (BP, 2019), with the power sector accounting for 48% of coal use in China, followed by the industrial sector (39%), heating supply (7%), buildings (5%) and agriculture (1%) (National Bureau of Statistics of China, 2021; Rioux et al., 2016). Moreover, coal reserves and production are unevenly distributed across China, with the top three provinces, namely Shanxi, Shaanxi and Inner Mongolia, accounting for more than 70% of national coal production (see Figure 2-1 for more details).

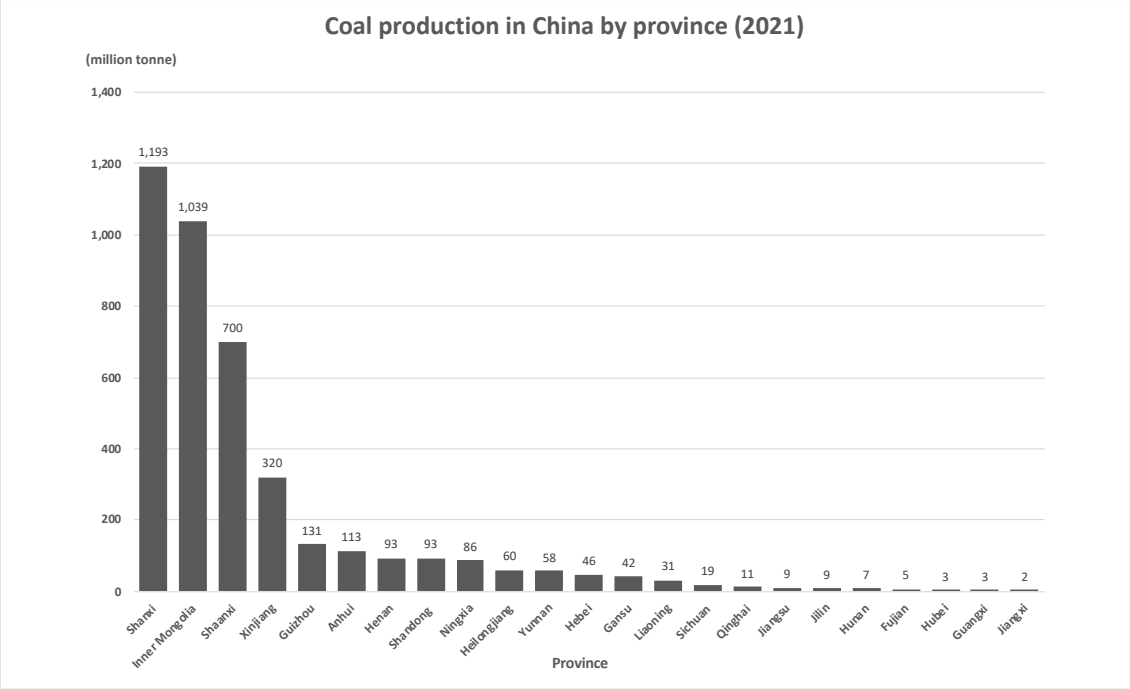


Figure 2-1 Coal production in China by province (Data source: National Bureau of Statistics of China, 2021)

Existing literature has recognized water pollution and land use, land subsidence, air pollution and carbon emissions as some of the major environmental impact of the coal sector (Han et al., 2018). The location of major Chinese coal production and coal-fired power plants in water-stressed areas has also led to "energy-water conflict", one of the most prominent environmental issues in the coal sector in China, especially in the Yellow River Basin (Pan et al., 2012; Peng et al., 2018; Wright, 2013).

The consolidation of the sector and the increase of open-pit coal mining has led to significant increase of the scale of coal mines (Zhao et al., 2016), which also escalated the impact of mining activities on the ecological system. In the meantime, the Chinese government developed policies and regulations that urge coal mining companies to build "green mines" and enhance ecological reclamation and restoration (Li, 2020; Sun et al., 2020).

Land subsidence caused by underground coal mining leads to the destruction of buildings, farmlands and disturbs the underground water systems, which is a prominent issue in coal regions such as Shanxi and Anhui Province and affects the livelihood of millions of local residents. It was estimated that for every 10,000 tonnes of coal mined, 0.2-0.33 ha of land would be affected by land subsidence (Xiao et al., 2014). This also raises food security concerns especially in overlapped areas of agricultural land and coal mining sites (Xiao et al., 2020).

The coal mined in China was frequently referred to as "blood-stained coal" (I. Cheng et al., 2008; Wright, 2013), which reflects the high accident rate in coal mines and the enduring health impact on coal miners. Coal workers' pneumoconiosis (CWP), also called black lung disease, which is a chronic occupational lung disease due to long-term inhalation of coal dust, has one of the highest rates among occupational diseases in China (Liu, 2021). With strengthened health and safety policies and measures especially after the consolidation of the sector by state-owned enterprises and the closure of illegal small-scale coal mines, as well as the shift from underground to large-scale open-pit mining, there has been a decrease of incident rate in recent years (Caldecott et al., 2017; Wright, 2012). On the other hand, the broader health impact of coal combustion has been increasingly recognized and studied. It was estimated that coal-related air pollution led to approximately 366,000 premature deaths in China in 2013, and coal combustion was the single largest contributor to air-pollution deaths in the country (GBD MAPS Working Group, 2016).

The environmental and social costs of coal has often been referred to as "externalities" (Cardoso, 2015; Epstein et al., 2011). While the "cheap price" of coal has been a typical argument for coal dependence used by many countries (including China), the viability of building more coal plants would be different if taking into account the "true cost" of coal to governments and people (I. Cheng et al., 2008; Teng, 2012). There have been attempts to estimate the externality of coal at national (Mao et al., 2008; Teng, 2012) and district level (Li et al., 2011) in China. The estimate by Mao *et al.* (2008) indicated that the total external costs of coal in 2007 could be in par with 7.1 per cent of China's GDP for the same year and that the price of coal would rise by 23.1% if external costs of coal are internalized, while Teng (2012) estimated the externality cost of coal at CNY 260 (approx. USD 41) per tonne. These estimates, which did not include climate related costs, demonstrated that the "external" cost of coal in China is really high when compared to its low price.

However, the internalization of externalities alone is unlikely to settle the problems of coal in China. As Martinez-Alier (1995b, p. 17) argued, "there cannot be 'ecologically correct prices', though there might be 'ecologically corrected prices'". The ecological distribution conflicts discussed in this study illustrate, to some extent, the incommensurability of coal impacts, and exemplify the diverse bottom-up strategies employed by affected groups to "negotiate" the value of these externalities.

The ecological distribution conflicts analyzed in this chapter have taken place across a period of time that the coal sector as well as the Chinese economy has gone through multiple stages of reforms, affecting land ownership, workers, the environment, amongst many factors. Figure 2-2 highlights some characteristics of major shifts in the development of the coal sector in China: the liberalization of the coal sector in the 1990s that witnessed increasing amount of small-scale private coal business, while the industry was known for land disputes, high fatalities caused by accidents and environmental pollution; the "golden ten years" in China's coal sector between 2002-2012 that led to overcapacity, intertwined with pollution and corruption scandals; the consolidation of the sector by state-owned companies that began around 2008 and led to the closure of large number of small-scale coal mines, followed by supply-side reform and stricter environmental policies; and more recently a new wave of coal-fired power boom after the Covid-19 pandemic (Dong et al., 2021; GEM, 2023; Thomson, 2003; Wright, 2012) .

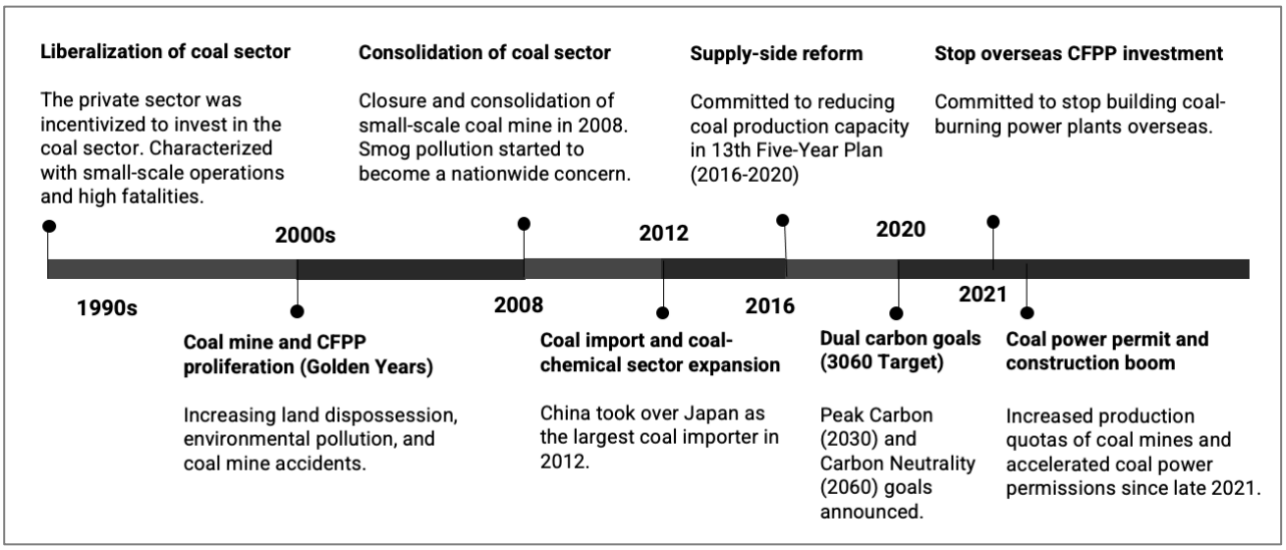


Figure 2-2 Evolution of the coal sector in China (1990s-2020s). Prepared by author.

China established policies that restrict the approval of new CFPPs in 2016 to address overcapacity and pollution concerns (Le Billon & Kristoffersen, 2019). However, the proposal and construction boom of CFPPs in China came back in 2020 as some provinces used coal projects to stimulate economies amidst the Covid-19 pandemic, with 38.4GW of new CFPPs commissioned in China in 2020 according to the Global Energy Monitor (GEM, 2023). This continued dependence on coal poses socio-environmental impacts on local communities as well as significant and enduring implications for the prospect of global climate goals.

One unique aspect of China's coal commodity chain is the development of its coal chemical industry. Traditionally, coal can be divided into two broad categories: thermal (or steam) coal for power plant and metallurgical (or coking) coal for manufacturing iron or steel. The consumption of coal has been diversified with the development of the modern coal conversion industry that entails not only the production of coke, synthetic ammonia and fertilizers, but also increasingly other forms of fossil fuels such as oil and natural gas, and a variety of industrial chemicals through processes of coal liquefaction and gasification (Yang & Qian, 2019). Despite the potential to support energy security considering China's relatively scarce oil and natural gas reserves, these coal chemical projects have encountered economic and environmental constraints and led to the scrutiny from communities and NGOs due to wastewater discharge, water overconsumption and greenhouse gas emissions (Cheng, 2013; Greenpeace, 2013; Liu et al., 2020; Yang & Qian, 2019). An estimate indicated that the total CO_2 emission of China's coal chemical industry alone in 2015

was 607 million tonnes (Mt), higher than the annual emission of a country such as Canada (555 Mt) or Brazil (486 Mt) (Zhang et al., 2019). It is thus important to look beyond the power sector and incorporate the traditional as well as modern coal chemical industry into the analysis of China's coal economy to understand the socio-environmental and climate impacts across the lifecycle of coal. In this study, the analyzed ecological distribution cases also cover the coal chemical sector in addition to coal mining and CFPP.

2.3 Concepts, methods and materials

Ecological distribution conflicts and environmental justice

The term ecological distribution conflict was coined by Martinez-Alier and O'Connor (1996) to describe the social conflicts emerging over the unequal distribution of environmental burdens and benefits, such as the uneven exposure of diverse social groups to pollution, or their loss of access to natural resources such as land. While the term itself implies a distributional focus in the study of environmental conflicts, the concept has also been widely used in Ecological Economics to analyze the struggles over multiple, incommensurable values attached to the environment, which become visible through social mobilizations and conflict (Martinez-Alier et al., 2010a). Compared to "economic distribution conflicts" over profits, prices or rents, ecological distribution conflicts cannot be necessarily resolved through economic means, such as monetary compensation, fair rent distribution, or correct prices, nor can they be understood adequately through an economic lens of analysis. Moreover, ecological distribution conflicts involve social mobilizations linked to multidimensional deprivations of people's needs, such as deprived access to clean water and air, or the loss of cultural values and identities. These deprivations are linked to a range of poverties beyond income deprivation that are incommensurable with monetary measures (Scheidel, 2013). The concept of environmental justice (EJ), concerned with distributional issues, the recognition of diverse values and worldviews at play in conflicts and procedural fairness in decision-making, among other aspects (Schlosberg, 2004, 2013), offers a useful lens to understand the underlying reasons (i.e. environmental injustices) of why ecological distribution conflicts emerge, as well as the incommensurable values that different actors hold towards the environment.

Existing studies that examine environmental justice concerns from China's perspective have focused on three main local characteristics that resonate in the coal commodity chain: east-west

regional environmental disparity, urban-rural environmental disparity, and the vulnerability of certain marginalized groups, e.g., migrant workers, to environmental risks (Liu, 2021; Mah & Wang, 2017, 2019). The environmental justice framework has been adopted in case studies that cover a wide scope of geographies, such as coal mining in Inner Mongolia (Liu et al., 2014), land subsidence in a coal mining city in Shandong (Li & Si, 2017), community concerns over a petrochemical plant in Nanjing (Mah & Wang, 2019), as well as ecological recovery programs in northwestern China (Mao et al., 2021). Some legal scholars have also argued for redefining environmental justice in China's legal and socio-political context, with a focus on "good environmental governance" instead of bottom-up environmental movements (Mah & Wang, 2017). This builds upon studies that have characterized environmentalism in China as "embedded activism", "soft confrontation", or "greening without conflict" that indicates a relatively gradual and mild approach shying away from direct confrontation with the state and state-controlled corporates (Ho, 2001; Mah & Wang, 2017; Wang & Wang, 2020; Zhuang & Wolf, 2021). More recently from the perspective of public interest litigation (PIL), scholars referred to "Confusian justice" to differentiate the Chinese understanding of justice from the Western liberalism justice tradition and highlighted the importance of collective interest rather than the fair treatment of individuals in China's context (Wang & Lo, 2022). These studies have illustrated the plurality of environmental justice conceptions when applied to specific locations and commodity chains and call for understanding environmental justice from China's geographically and culturally diverse local context. Our study aims to contribute to this literature by illustrating the environmental justice concerns that have emerged across China's coal commodity chain, as discussed next. In addition to illustrating the environmental injustices that led to ecological distribution conflicts, and the incommensurable values voiced by diverse groups affected by the coal economy, the next sections will also discuss how social mobilization and coal activism takes shape in the specific socio-political and cultural context of China, and the implications it brings for the sustainability dimensions of the coal sector.

The commodity chain approach

Among the drivers over ecological distribution conflicts are frequently the specific socio-metabolic patterns of societies, which broadly refer to the changing material and energy exchange relations occurring between the environment and the input, throughout and output side of the economy (Scheidel et al., 2018). Understanding the diverse links between China's coal-based social

metabolism and ecological distribution conflicts, requires looking beyond an isolated segment of coal mining, or a coal-fired power plant, in order to extend the analysis across the lifecycle of coal. In this context, a commodity chain (CC) perspective is useful, and has been increasingly applied in political ecology studies. It enables *"linking disparate sites of injustice exposing their positions along a chain"* while *"linking producers to consumers"* (Cardoso, 2018; Robbins, 2014).

Here I adapt the commodity chain approach to China's national context, and build upon the definition by Piggot (2017), with reference to Lazarus et al. (2015), where "supply-side" refers to the exploration, extraction and transportation of fossil fuels, and the "demand-side" refers to the consumption of fossil fuels including consumption by electricity producers. Understanding coal dissent from a commodity chain perspective enables tracing how contested projects on the end use side would also have consequences for the supply side of the coal commodity chain. Besides, there is often a significant overlap of climate action movements on the supply and demand-side, and a combination of supply and demand-side policies would be a more economically efficient approach to achieving emissions abatement (Gaulin & Le Billon, 2020; Piggot, 2017).

The coal commodity chain in China can be broadly categorized into four types of activities: coal production, coal preparation and washing, transportation and coal end-use, which eventually leads to CO_2 emissions and other forms of waste (Tu, 2013). This chapter is built upon the analysis of 30 cases of ecological distribution conflicts across coal mining, coal-fired power plants, coking and coal chemical (excluding coking). Some of these cases, e.g., cases on coal mining, also relate to the transportation of coal. While the coal preparation and washing sections of the coal commodity chain are not covered within the scope of this study, it could be a topic for future research.

Comparative Political Ecology and the EJAtlas

For the analysis of ecological distribution conflicts occurring in China's coal economy, this chapter draws on empirical data that have been largely curated by myself for the Global Atlas of Environmental Justice (EJAtlas). Established in 2012, the EJAtlas is the largest crowdsourced online database of EDCs around the world, including about 4,000 geo-located cases (Scheidel et al., 2023; Temper et al., 2018). The EJAtlas serves as a valuable source for studying both commodity extraction and waste disposal frontiers where affected actors are calling for socio-environmental justice from the bottom up (Hanaček et al., 2022; Schindler & Demaria, 2020), which meets the

objective of this study in understanding the unequal distribution of socio-environmental impact across the coal commodity chain in China and how it is perceived and contested from the bottom up. The EJAtlas has been co-created with scholarly and activist knowledge based on a set of more than 250 pre-established quantitative and qualitative data fields (Temper et al., 2015). It is a tool for documenting environmental conflicts and mobilizations, as well as for conducting comparative and statistical political ecology analyses of ecological distribution conflicts, aiming to explore trends and patterns in conflict dynamics in a more systematic way, across sectors, regions, and topics (Martinez-Alier, 1995b, 2023b). Examples for such comparative analyses include studies over windmills (Avila, 2018), renewable energy installations and fossil fuels (Gu, 2024; Temper et al., 2020), fisheries (Ertör, 2021), conservation projects (Fanari, 2022), the rise of commodity extractions in the Artic (Hanaček et al., 2022), or the role of women activists in environmental conflicts (Tran et al., 2020; Tran & Hanaček, 2023). This paper builds upon a comparative political ecology approach to analyze ecological distribution conflicts emerging along the coal commodity chain in China.

The case entries in the EJAtlas are based on secondary data collected from a variety of data sources, which enables the user to cross-check and helps reduce possible bias in the description of the context, process, and outcomes of conflicts (Temper et al., 2015). Selected sources include academic papers, legal proceedings, mainstream media reports, grey literature such as civil society reports, posts on social media or video documentaries, published evidence from impacted communities, and government authority documents. Information on conflicts is provided by a network of academics and civil society actors, including activists, journalists and NGOs. Before a case is published, each entry is cross-checked for consistency, quality and proper referencing by a team of moderators mostly based at the Autonomous University of Barcelona. For further methodological details, see Temper et al. (2015).

Sample characteristics and data sources

Being a crowdsourced database, the EJAtlas has important general limitations, and is characterized by uneven coverage across geographic regions (for a general discussion, see Scheidel et al., 2023. It has been argued that areas where free media is restricted are typically under-represented (Le Billon & Lujala, 2020). For example, prior to this research, the EJAtlas documented only seven coal-related conflicts across China. To address this limitation and to enhance the case coverage for

the purpose of this study, I conducted a preliminary literature review and crosschecked with additional publicly available sources in Chinese and English language (e.g., cases listed under the page "opposition to coal in China" in the Global Energy Monitor Wiki (GEM, 2021). Keywords such as "mass event", "environmental conflict", "environmental litigation", in combination with "coal", "coking", "thermal power", and "coal chemical" were used to screen for relevant cases in the internet. Consequently, I added 23 new cases to the EJAtlas, based on publicly available secondary information and informed by consultation with local stakeholders and experts. As a result, 30 conflict cases, including those linked to coal mining (13 cases), coal-fired power plant (7 cases), coking (4 cases), and coal chemical (excluding coking, 6 cases) were analyzed in this study. For further information on each case, see Appendix 2-A List of cases under analysis, which includes case ID, name and link in EJAtlas, province and the year that the conflict started or took place. The cases, when referred to in this paper, will be represented by their corresponding case IDs, which include a letter that stands for the industry, with "M" for mining, "P" for power plant, "K" for coking, and "C" for coal chemical.

The cases were selected based on a purposive sampling approach (O'Leary, 2017; Teddlie & Yu, 2007). Purposive sampling does not aim to cover all the environmental and social conflicts borne in the coal commodity chain, which would be difficult in China's context where no public record of environmental conflicts exists, but rather aims to cover a set of conflicts that meet predetermined criteria relevant to the research questions. The criteria for the selection of cases included location (China), commodities involved (with coal as the main commodity that led to environmental conflict), the scale and impact of social mobilization, geographical representativeness of coal extraction frontiers especially coal-rich provinces in China, the socio-environmental grievances associated with the case (excluding cases where the conflict is primarily driven by labor or economic interest dispute), time frame (post 2000s), as well as the availability of multiple secondary sources and evidence. Given this purposive sampling procedure, the findings in this study do not aim for statistical representativeness. Instead, the analysis aims to collect and synthesize observations from a diversity of coal conflict cases in order to identify the manifold ways through which the unequal distribution of socio-environmental impacts across the coal commodity chain takes shape, the means through which they are voiced and contested by civil society, as well as the diverse pathways through which these bottom-up initiatives potentially influence coal use in China.

The analysis on the EDCs is primarily based on the variables in the EJAtlas database, including location, socio-economic and environmental impacts, mobilizing groups, forms of mobilization, and outcomes. I have also conducted content analysis of the case descriptions and adapted the original or created new variables on mobilizing group, forms of mobilization, and outcomes to reflect the most relevant categories in China's context.

To complement the secondary conflict data with further contextual information, semi-structured interviews were conducted both remotely and in-person during fieldwork in China between 2020 and 2023. The interviewees include community members, NGO representatives, lawyers, government officials, and companies involved in the cases under analysis. The purpose of these interviews was to gather information related to the cases that would supplement the secondary data from publicly available sources and deepen my understanding of the socio-political context of the coal commodity chain in China. The remote interviews served as an alternative to in-person meetings during the Covid-19 pandemic (see Lupton, 2021). Despite the uncertainties and challenges posed by the pandemic, the flexibility of time and location in the setup of remote interviews has facilitated the interviews with stakeholders that would not be accessible for in-person meetings. Details regarding specific locations and interviewees have been omitted to protect the privacy of the interviewees and their associated organizations.

2.4 Results and discussions

The geography of contested coal in China

The cases under analysis (as can be seen in Figure 2-3) are spread across 16 (out of 32) provinces in mainland China. Almost half of the cases (14 out of 30) are located in the top three coal production provinces in northern China, Inner Mongolia (8), Shanxi (4) and Shaanxi (2). This corresponds to the uneven distribution of coal reserves and production across China, with the three top provinces accounting for more than 70% of total coal production. In the past two decades, the government has encouraged the development and consolidation of large-scale coal mines and the integration of the coal chain to shorten the distance between coal production and consumption, which leads to increasing mine-mouth CFPPs and coal chemical industrial parks in the proximity of coal production areas. This further aggravates the uneven distribution of socio-environmental impacts from coal mining.

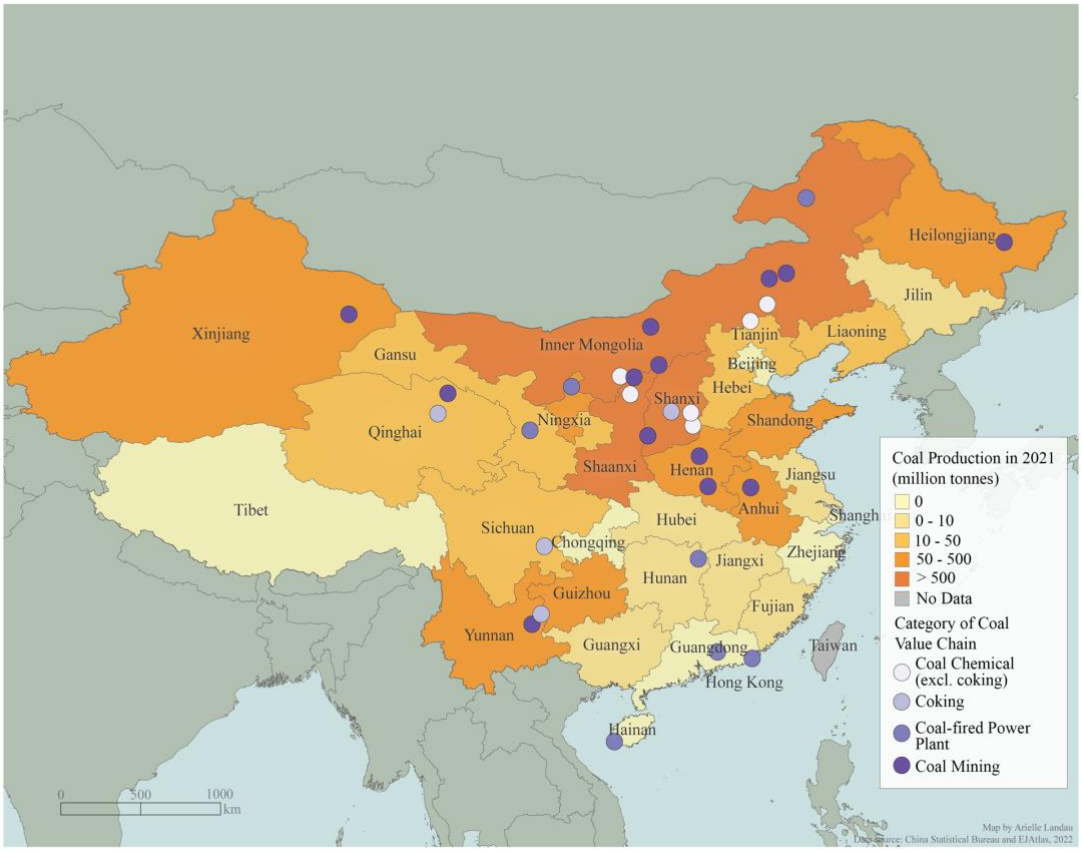


Figure 2-3 Distribution of coal-related ecological distribution conflict cases under analysis. Data compiled by author based on EJAtlas data and China Statistical Bureau (2021). Map by Arielle Landau.

On the other hand, the expansion of coal transport networks has accelerated the transportation of coal from the west to the east and from the north to the south. Some of the contested projects in different locations, both near and afar, are connected through the coal commodity chain. For example, the coal used at the coking plant in Tongpo (K1) was transported from the coal mine (M8) located 145km away in Muli. CFPPs in southern China such as in Guangdong, Hainan and Hunan (e.g., P1, P2, P3) heavily rely on coal transported from coal mines in northern China. In addition, Case P1 in Hainan Province and P2 in Guangdong Province signaled the expansion of coal-fired power to the coastal areas in southern China, fueled by coal transported by rail from northern China and imported by sea from Indonesia.

The majority (24 out of 30) of the cases concern rural or semi-urban areas. The rural residents, mainly peasants, pastoralists as well as fisherfolk, have been the major victims of the

environmental, health and social impacts of these projects. This resonates with the findings from a global level systematic mapping of protests against energy projects, which indicated that marginalized groups such as rural communities and ethnic minorities are disproportionally impacted by fossil fuel projects (Temper et al., 2020). It is also important to note that the socio-economic transformations in China has led to an increasingly blurred boundary between the rural and the urban (Chopra, 2016). Coal sector development is part of the transformation and also reconfigures such boundary in the process of displacement and resettlement. Huainan (location of case M3) is a typical example of an industrial city founded after the establishment of the coal mining base. In another case (M2), land subsidence caused by coal mining and the subsequent resettlement has led to the relocation of some villages to the edge of the city, while leaving some others behind.

Multidimensional grievances and incommensurable values

An aggregate summary of the environmental, livelihood, health, and cultural grievances expressed by communities and NGOs based on the cases under analysis and ordered by number of occurrences under each category is presented in *Figure 2-4*. Some of these are project-specific and local impacts, while others, such as biodiversity loss and climate change that concern regional and global impacts, tend to be expressed by NGOs instead of local communities.

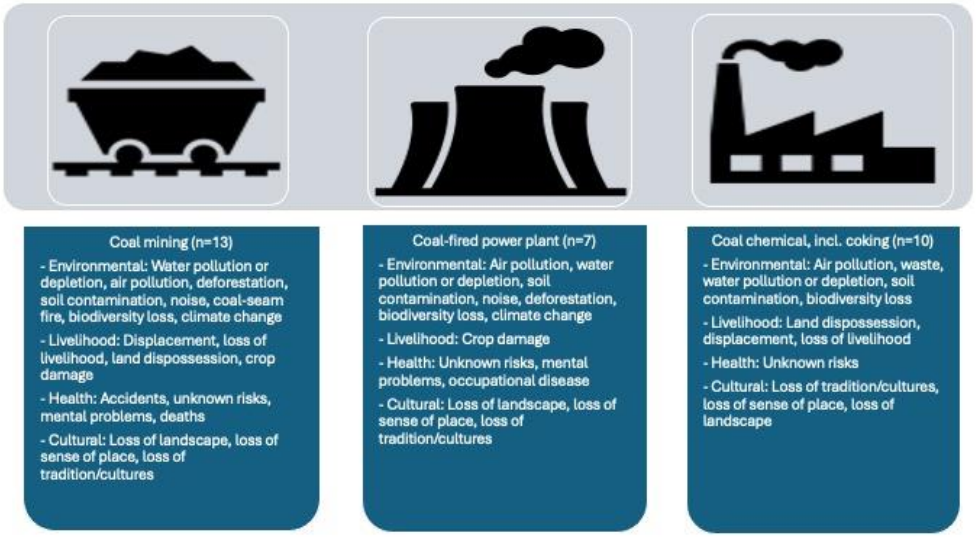


Figure 2-4 Summary of major grievances expressed by communities and NGOs (Data source: EJAtlas, 2023)

Certain values and deprivations that cannot be easily quantified with monetary terms have emerged, such as the loss of landscape, traditional knowledge, practice and culture, and the sense of place. These are evident in areas where ethnic minority groups are more populated such as in Inner Mongolia and Qinghai, for example in case K1 where local Mongols consider their "sacred mountain" and cultural traditions affected by the incoming coking plant. In case M8, local herders indicated that they would rather go back to the way that they used to live instead of being compensated with thousands of yuan by the coal mine, as they used to be able to drink water from the river that flows down from the mountains, which got polluted by illegal coal mining activities. In case M6 where a herder was killed by a coal truck in the conflict, a local student told the journalist that "The unrest is not an economic matter…It's about protecting the environment, protecting our traditional culture" (EJAtlas, 2019c). Similar expressions are also seen in other regions, for example in case M2 and M3 where local communities that were relocated expressed their loss of connection to "homeland" as their home became inhabitable, and the graves of their ancestors disappeared under the water due to land subsidence. These grievances illustrate the rise of multiple forms of deprivation that are not addressed by monetary compensation or new employment opportunities in the coal sector. While income and employment data may indeed improve in such contexts, it is important to consider the emerging trade-offs across multiple dimensions of poverty appearing in ecological distribution conflicts (see e.g., Gamboa, Mingorría, and Scheidel 2020).

Further, environmental related diseases (8 cases) and mental health problems (2 cases) have been reported, as well as health impacts such as "exposure to unknown or uncertain complex risks" are also commonly reported (8 cases). As seen in other cases around the world, the lack of scientific evidence of direct causal relationship between specific projects and health degradation in adjacent communities makes it difficult for communities to claim compensation, which represent instances of "undone science" (Navas, 2022). As will be shown in the section on outcome and impact, there is no indication of remediation or compensation directly related to public health.

Diversity of actors and repertoires of contention

The 30 cases cover conflicts that started between 2005 and 2023, complementing existing studies related to coal and environmental justice based on single case studies or surveys in specific areas (Li & Si, 2017; Liu et al., 2014; Yang & Ho, 2018). It can be seen that the ecological distribution

conflicts in the coal sector in China have evolved from "not in my backyard (NIMBY)" that concerns the immediate neighborhood to initiatives addressing broader public interest, especially when NGOs were involved, though still rarely reaching concerns for CO_2 emissions and climate change.

Scholars have broadly categorized environmental activism in China into activism driven by non-governmental organizations (NGOs) and more localized grievance-driven social mobilization (Wu, 2013; Yang & Ho, 2018). Both types are evident among the 30 cases and in some cases complement each other with multiple forms of mobilization. *Table 2-1* provides an overview of the most common strategies manifested in the cases under analysis.

Table 2-1 Grievance-driven and NGO-driven environmental activism

Grievance-driven activism by individuals or community collectives	**NGO-driven activism**
1) complaint and petitions;	1) monitoring and exposing corporate pollution behavior as whistle-blower or watchdogs;
2) blockade or street protest/marches;	2) supporting communities with evidence-based research, awareness raising and capacity building;
3) lawsuit/court cases;	3) legal support for pollution victims and environmental litigation;
4) others such as artistic intervention or media-based activism	4) influencing policy making and legislation

The scale of grievance-driven activism varies. As listed in *Table 2-2*, some intensive and even violent mass events in the form of blockade or street protest/marches emerged between 2009 and

2016, with the participation of up to 10,000 people, in response to the proposal or expansion of coal-related infrastructures and their socio-environmental impacts. For example, a few large scale anti-CFPP protests took place in Hainan, Hunan and Guangdong (case P1-P4). These have been typically self-organized by communities without any NGO support. Despite their scale and intensity, these events were relatively short-lived and ended either upon repression of activists (e.g., P4) or negotiated compromise (e.g., P1). Such events became less visible in public media after 2016, while environmental litigations, including public interest litigations, have increased. Complaint/petition filing occurred across time, while the tools and channels have evolved, for example with online forms and hotlines as part of the Environmental Inspection led by the Central Government (EICG) scheme (Li et al., 2020; Yang & Chen, 2023).

Table 2-2 Examples of intensive conflicts

Case ID	**Type**	**Location**	**Number of participant (estimates)**	**Year**
P3	CFPP	Pingjiang, Hunan	10000	2014
P4	CFPP	Heyuan, Guangdong	10000	2015
M6	Coal mining	Xilin Gol, Inner Mongolia	2000	2011
P2	CFPP	Haimen, Guangdong	2000	2011
K2	Coking	Weiyuan, Sichuan	2000	2015
M3	Coal mining	Huainan, Anhui	1000	2009
M11	Coal mining	Xinzheng, Henan	1000	2016
P1	CFPP	Yinggehai, Hainan	1000	2012

Studies on environmental justice as well as environmental health justice in China, e.g., Lora-Wainwright (2021) and Mah and Wang (2019), indicated a frequently encountered resigned attitude of communities, or what Lou (2022) considered as an “art of unnoticing”, towards the status quo in environmental and health problems. While the various forms of approaches taken up

by rural residents opposing coal-related projects may seem different from the "resigned" attitudes, as also highlighted by these authors and other studies (e.g., Yang & Ho, 2020), it is important to note that not all community members share the same perceptions and reactions, as economic dependency, such as in the form of employment, may complicate the relationship within the community. In addition, repression or criminalization of environmental activists could indeed change the mobilization dynamic as will be discussed in the next section on outcomes. On the other hand, windows of political opportunity may occasionally lead to changes of community members' attitudes and reactions.

Studies have signaled the importance of networks in environmental activism i.e. when civil society organizations or different types of actors with different interests come together, they can reinforce each other's objective (Piggot, 2017). In China's context, despite the similarity of grievances, resisting groups rarely joined forces across social and geographical boundaries (Mah & Wang, 2019). While exceptions exist in anti-incinerator movements dealing with urban or industrial waste that have established networks and urban-rural resident collaboration (Alpermann & Bondes, 2019; Johnson et al., 2018; Wong, 2016), the cases under analysis demonstrate patterns of isolation. This contrasts with nation-wide and networked anti-coal movements in other major coal production countries such as Indonesia and South Africa (Burton, 2022; Gu, 2024).

NGOs, including grassroots NGOs, government sponsored NGOs (GONGOs) and international NGOs, are present in almost half (14 out of 30) of the cases under analysis. Communities affected by the coal sector sometimes resort to NGOs for support with pollution assessment and legal advice, while in other cases NGOs, especially international NGOs such as Greenpeace, also have campaigns and policy advocacy focused on the coal sector. A few cases illustrate sporadic collaborations between different NGOs, especially in public interest litigations. For example, in case M7, grassroots NGO Chongqing Liangjiang Volunteer Center and GONGO China Biodiversity Conservation and Green Development Foundation (CBCGDF) worked as joint plaintiffs to litigate against illegal mining in Hami, Xinjiang. In case C5 regarding the Shenhua coal-to-liquid project, in addition to international NGO Greenpeace's campaign, local grassroots NGOs Friends of Nature, Nature University, and the Centre for Legal Assistance to Pollution Victims (CLAPV) collaborated in filing a PIL. Despite the rejection by two courts, one in Beijing and another in Inner Mongolia, this failed litigation attempt led to a seminar with the participation of NGOs, lawyers and scientists to discuss civil society's pursuit of PIL against large state-owned

enterprises' environmental pollution. The seminar also reinforced civil society's collective opinion on expanding the scope of entities eligible for filing PIL during the revision of the Environmental Protection Law (EPL) (EJAtlas, 2020a). This case also demonstrated a combination of all four strategies of NGO-driven activism applied by a collective of international and domestic NGOs.

NGOs have increasingly adopted PILs (e.g., M8, M13, P7, K3, K4 and C6) since the revised EPL came into effect in 2015, while procedural injustices such as not being recognized as eligible plaintiffs continued to take place. Based on the new EPL, environmental NGOs that have operated for five years without violation of law became eligible to file public interest litigations (Zhuang & Wolf, 2021). In addition to PILs related to air and water pollution, two cases (P5 and P6) filed by grassroots NGO Friends of Nature (FON) were considered the pioneer grassroots climate litigation in China. In these cases, FON sued the local branch of State Grid in Ningxia and Gansu on the grounds that the company refused to purchase all of the electricity produced from wind and solar and the amount not produced with renewable was substituted with coal-fired power, which led to additional air pollution and GHG emissions (EJAtlas, 2021c, 2021d).

Journalists and artists played a catalyst role in several cases. For example, in case M1, the state media CCTV made a 30-min program and interviewed a representative from NGO CBCGDF to discuss the coal seam fire at a coal mine that led to environmental, health and livelihood damages to local communities. In case M13, the intervention of a performance artist illustrates a form of radical grassroots intervention. The artist used 10,000 bottles of clean drinking water from one of China's most popular bottled mineral water brands, Nongfu Spring (农夫山泉, which literally means the water that farmers drink) and exchanged with the local villagers that had suffered from water pollution caused by nearby coal mines for 5 tonnes of polluted drinking water. The polluted water was displayed in an exhibition in Beijing, which became well-known on social media and led to follow-up measures by the local government.

Outcome and impact of coal dissent from the bottom up

The outcomes of environmental conflicts are manifold and can lead to impacts across different sustainability dimensions and scales. For instance, Thiri et al. (2022) observed that social conflicts could contribute to climate mitigation and limiting carbon emissions with direct and immediate outcomes such as project suspension or cancelation, as well as indirect outcomes such as

awareness raising and institutional changes such as policy change and legislation. Here we address whether and how bottom-up initiatives potentially influence the sustainability dimensions of China's coal-based economy by taking a closer look at the effects of the EDCs under analysis.

Both grievance and NGO-driven activism have led to direct outcomes, including economic compensation and temporary project suspension or relocation (e.g., P1 and P3). However, NIMBY type of conflicts could result in undesired impacts and "conflict spiral", where the solution of one sustainability issue could potentially lead to new conflicts or relocate the conflict elsewhere (Scheidel et al., 2018). As a result, they do not necessarily lead to broader sustainability transitions, if the impacts are eventually relocated or delayed, instead of entirely removed.

In some cases, technical solutions were offered as a result of confrontation and negotiation, which partially resolved communities' immediate livelihood issues, e.g., addressing access to drinking water through digging deep wells (M12) and resettlement of communities due to land subsidence (M2). These to some extent alleviated or delayed the negative impacts of the coal sector, although not including carbon emissions, with the potential of translating environmental and social risks into business costs for the companies (Franks et al., 2014).

In the meantime, the repression and criminalization of activists (in 7 out of 30 cases) could constrain the effects of mobilizations and lead to a retreat of community-based monitoring of irresponsible corporate activities, which corresponds to a global trend of growing intolerance towards social resistance to extractive projects by both progressive and conservative governments (Conde, 2017). For example, in case M12, a local villager was arrested on the ground of illegal land appropriation after his involvement in the environmental activism against coal mining pollution and local villagers became reluctant to participate or even talk about the issue in fear of being criminalized (EJAtlas, 2020c). In addition, several suspended CFPPs were resumed shortly after repressing or pacifying the communities (e.g., P1 and P3), while a further expansion of the highly contested CFPP in Haimen (P2) was approved during the coal power boom after the Covid-19 pandemic.

Project cancellation is rare among coal mining and coal chemical projects in China. This relates to the findings of Temper *et al.* (2020) which revealed that globally mining activities are among the least reported to be canceled or temporarily suspended, suggesting strong geopolitical and

economic interests as a potential reason. Such political and power struggles can be seen in a rare case (M8) where coal mining was cancelled. The conflict started in 2014 when Greenpeace published an investigation of the illegal mining activities at the Muli coalfield at the Qilian Mountain Nature Reserve in Qinghai Province. This attracted the attention of the central and provincial government that mandated the companies to stop mining and conduct ecological restoration. However, a follow-up journalist investigation in 2020 uncovered the continued illegal mining activities in the name of ecological restoration, which even escaped two rounds of EICG. The corruption of senior provincial government officials was also uncovered, leading to the sanction of officials and a complete stop of mining activities in the area.

In some cases, NGOs used the PIL process to solicit public information disclosure by companies and government organizations, and advocate for public participation. For example, NGOs were able to negotiate for a legally binding role to monitor companies' ecological restoration process and the utilization of the restoration funding in a few PILs (M7, P7, K3 and K4). In other cases, such as Greenpeace's campaign on the socio-environmental impacts of the coal chemical industry (C1, C4 and C5) and FON's climate litigation (P4 and P5), the NGOs were able to mobilize through one or few high-profile cases to influence the broader debates across the sector, leading to potential influence on policy making and legislation that could bring in more structural changes in the coal chemical and energy sectors. In the Shenhua coal-to-liquid case (case C5), despite the failure in court (or out of the court, since the filing of the case was rejected), the collective efforts of grassroots NGOs contributed to influencing the legislation on PIL that later enabled more grassroots NGOs to be eligible to file PILs.

As indicated by existing studies on coal dissent, it would be unreasonable to assume that environmental activism in China would take the same shape as those in other geographies and political regimes (Cardoso & Turhan, 2018; Delina, 2021). While none of the cases resulted in "coal exit" or moratoria type of outcome, anti-coal initiatives from the bottom up might contribute to a future sustainability transition of the coal sector with both direct and indirect outcomes. In China's context, radical grassroots mobilizations could possibly lead to direct and immediate outcomes, but long-term institutional changes call for more collaborative and resilient forms of activism that could make use of policy opportunity windows and sustain repeated defeats in and outside the courtroom.

2.5 Case studies

This section includes two case studies of coal related ecological distribution conflicts to complement the discussions. The case studies are informed by secondary sources, in-person and remote interviews with NGOs, local communities, as well as other stakeholders involved in the cases. I have also added related case entries in the EJAtlas.

2.5.1 Water pollution and performance art in Yulin, Shaanxi

The environmental, social and health impacts of the coal value chain have been well studied, including its impact on groundwater (Greenpeace, 2013; Yang & Qian, 2019). Against such impacts local communities and civil society organizations have mobilized around the world. However, challenges remain, given that it takes a long time to prove causal relationships between the coal mining activities and the health burdens on local communities and their livestock. For example, it takes years for patterns of certain chronic diseases to emerge. In addition, many coal mines and coal-fired power plants are located in remote areas in northern China, which makes it even more difficult to expose such impacts and hold the corporations accountable. Xiaohaotu Township is one of these places.

The name Xiaohaotu is derived from Mongolian and means a small place located in a windy desert area with rich groundwater resources. In addition to abundant groundwater, Xiaohaotu is also rich in coal and natural gas resources. Within 30 kilometers of the township, there are three coal mines and one gas field in operation (EJAtlas, 2020c). The discovery and exploration of coal and natural gas has dramatically changed the groundwater access situation in Xiaohaotu. Located on the southern edge of the Maowusu Desert on the border between Inner Mongolia and Shaanxi Province and home to approximately 14,500 people, Xiaohaotu Township and its water struggles would hardly be known by people outside the area if not for the art project that performance artist Brother Nut (translated from his Chinese name “坚果兄弟”）initiated in June 2018. Before this, he was known for another radical project, where he walked around Beijing with an industrial vacuum cleaner for 100 days in 2015, to collect pollutants in the air. He then made a brick from what he collected and sent it to a construction site where the brick would become part a of seemingly normal brick wall, which to some extent exemplifies the daily and normalized experience of living with air pollution in Beijing.

At Xiaohaotu, Brother Nut used 10,000 bottles of clean drinking water from one of China's most popular bottled spring water brands, Nongfu Spring ("农夫山泉", which literally means the water that farmers drink) and exchanged the water with 5 tonnes of polluted drinking water from the local villagers that had suffered from water pollution caused by coal mines and gas wells for many years (EJAtlas, 2020c). The artist then transported the bottles to Beijing and Xi'an in preparation for an exhibition in each city. The exhibition in Beijing (see *Figure 2-5*) was soon suspended by the authorities, ostensibly due to trademark infringement and a complaint from the bottled water company. The police confiscated 7,000 of the bottles used for the exhibition.



Figure 2-5 The exhibition "Drink water like the farmers", which displayed 9,000 bottles of polluted water from Xiaohaotu. Photo credit: Brother Nut.

In addition, Brother Nut invited a heavy metal band to give a concert at Xiaohaotu. The artist indicated that it was a sarcastic way to use the pun rhetoric of "heavy metal" to raise awareness about the heavy metal pollution in the local drinking water. The concert comes only with music from the band, without any lyrics or audience (the original idea was to get 100 sheep from local villagers that also suffered from the poor water quality as audience, but it was not implemented).

The water contamination issue at Xiaohaotu received massive attention on social media thanks to Brother Nut's art project. Shortly after the exhibition of Brother Nut was circulated on social media, the local authorities started an investigation into the quality of drinking water sources, which revealed high levels of iron and manganese (in one case exceeding the permitted maximum 4.2 times) (EJAtlas, 2020c). The water contamination issue at Xiaohaotu was also mentioned during the regular press conference on environmental issues held by the Ministry of Ecology and Environment. In response, the local government implemented measures to improve the water quality for villages in Xiaohaotu, including digging deep wells and installing water purification equipment, as well as digging three drainage channels to divert the water discharged from the three coal mines. By September 2018, 3,805 water purification machines had been installed across 12 villages in Xiaohaotu and 12 wells of 120-metre depth had been dug to supply drinking water for local villagers. On the other hand, the coal mines continued their operations in the neighborhood of Xiaohaotu.

Brother Nut raised public awareness through social media, which forced the local and central government to respond and take action. This alliance of art and media, including social media, when effective, could indeed lead to third-party and public monitoring of companies and government bodies. When mentioning about Brother Nut during interviews with local villagers, some praised him as "the hero of Xiaohaotu". On the other hand, being exposed to the spotlight also put Brother Nut's further activities under scrutiny by the authorities, which limited follow-up activities in the area. This is also a dilemma that grassroots activists face in China.

For example, in December 2019, Brother Nut revisited Xiaohaotu and found out that the local villagers faced some new issues after the deep wells were dug, such as unequal price of drinking water from the deep wells, lack of access to clean water for the livestock, as well as only partial removal of hazardous mud by the gas extraction company. However, he could not travel freely to meet local villagers or conduct site investigation, as he was closely followed by company representatives in Xiaohaotu. As an alternative, Brother Nut put up white flags at multiple locations where the hazardous mud was located, as his artistic way of "giving in", to the hazardous mud from gas wells and to the people that were following him. In order to avoid causing trouble to local contacts, who were questioned by local government officials after Brother Nut had left, Brother Nut never went back to Xiaohaotu in person. On the other hand, the scrutiny also took place in the "virtual space". When starting to investigate the water pollution issue at Xiaohaotu in

2018, Brother Nut created 20 WeChat groups named after specific villages across Xiaohaotu Township and joined by local villagers voluntarily. Through setting up the groups and sending out online surveys that were responded by more than 250 villagers or their family members, Brother Nut collected comprehensive information on water pollution and health situation of local villagers and their livestock. However, after the water pollution issue had been exposed in the media, the villagers were told to quit the WeChat groups according to the mandate by the government officials at the municipality level, with specific government representatives responsible for specific villages. This led to a debate in some groups, with some leaving the groups, while others remained and some commented "there is nothing illegal to be in a WeChat group", according to a screenshot shared by BrotherNut.

In addition to the art-based activism, or "artivisim" (Sanz & Rodriguez-Labajos, 2021), initiated by Brother Nut, the local villagers filed their complaints through other official channels, including the Environmental Inspection led by the Central Government (EICG, 中央环保督察) scheme, which involved cases that were reported by the public and handed over to the local government for follow-up by Central Environmental Inspection Teams (CEITs) in June-July 2018. The local communities at Tuke Township, Uxin Banner, which is the neighboring township of Xiaohaotu located in Inner Mongolia, had reported that Muduchaideng Coal Mine and Menkeqing Coal Mine had discharged wastewater which destroyed their farming and forest land. In December 2021, similar issues were reported by local residents when the EICG team was visiting Shaanxi Province. In April 2022, the issues regarding coal mine drainage water affecting local grassland and forest land as well as the level of underground water were reported by local residents again when the EICG team was visiting Inner Mongolia. As of early 2024, local villagers of Xiaohaotu continued to negotiate with the local government and the coal mines regarding the annually repeated issues caused by coal mine drainage water discharge. As one villager shared, "We don't just want some monetary compensation, which we also deserve since our crops and trees were damaged. We want them to take the issues seriously and build the infrastructure that can manage the discharge of coal mine drainage water without affecting our livelihoods".

Besides local villagers' continued struggles, a grassroots environmental NGO Jinhua Green Ecology Culture Service Center filed multiple public interest litigation cases against the companies that own the coal mines and gas field involved in the pollution in April and May 2020. The cases

were accepted by Ordos Intermediate People's Court only one year later in May 2021, but eventually the claims by the plaintiff were rejected by the court.

2.5.2 Land subsidence in Huainan, Anhui

Huainan is an industrial city established upon the abundant coal resources buried below its surface, with its predecessor named Huainan Mining Bureau. Huainan city is one of the 14 hundred-million-tonne level coal bases in China, supplying one sixth of Shanghai's electricity and also considered the coal capital in East China (*Figure 2-6* shows the location of Huainan in China). This case study concerns the Guqiao Township in Huainan's Fengtai County, which is home to a number of underground coal mines.



Figure 2-6 Location of Huainan in China. Figure source: Xie, 2013

The coal mining activities of large-scale coal mines with more than 5 Mt/a capacity, including Gubei Coal Mine and Guqiao Coal Mine, have led to significant land subsidence issues and resistance by local communities over the years due to land dispute, relocation issues and environmental pollution. It was reported that the subsidence in Fengtai County involves 8

townships and 189 villages as of 2018, with 70% of the subsidence land as agricultural land and the subsidence area accounting for 10.2% of the total area of the county .

Guqiao Coal Mine is a state-owned underground coal mine operated by Huainan Mining Group. The construction started in November 2003 and went into production in April 2007. At the time of construction, it was the largest underground coal mine in Asia with 10 Mt/a design capacity.

The coal produced at Guqiao coal mine is supplied to coal power plants in Huainan as well as within and outside Anhui Province. Gubei coal mine is an underground coal mine in Tongying Village, Guqiao Township, operated by Huaizhe Coal & Electricity., Ltd. owned by Huaihe Energy Holding Group Co., Ltd. The construction started in 2005 and was put into official production in August 2008. The approved production capacity of Guqiao and Gubei coal mine is 9 Mt/a and 4 Mt/a as of 2022. The coal produced at Gubei coal mine is supplied to Fengtai coal power plant (4x600MW) owned by the same parent company, Huaizhe Coal & Electricity.

The land subsidence started around 2007 when the coal mines went into official operation. Since the groundwater level is rather shallow in the Huainan area, the ground surface may be lower than the water level after the coal mining-led subsidence. This makes the groundwater reach the surface and forms a subsidence area of accumulated water like a “lake” (see Figure 2-7 as an illustration).



Figure 2-7 Water areas created by the land subsidence due to coal mining in Huainan. Photo credit: Bowen Gu (2023).

One of the large-scale conflicts between local residents and the coal mining companies took place in early April 2009, when at least 1,000 villagers (some sources say 5,000) gathered and blocked the gate of Gubei coal mine and clashed with police. According to local residents, the Gubei coal mine had caused land subsidence that affected 50,000 people in the area, with a total of 8,000 hectares suffering from subsidence. Earlier in March 2009, the heads of five different administrative villages in the coal subsidence area in Guqiao Township published a petition letter in public named "Don't let the farmers' hearts subside" to publicize the issues in the area, including economic compensation, land compensation and relocation. It was mentioned in the letter that the rental subsidy was far from enough to support families' living and the compensation for destroyed land was also not enough to compensate for the loss of farmers' livelihoods. While the existing disputes had not been addressed, a new mining plan of Gubei coal mine came into place and was expected to lead to one third of the township's subsidence, which led to the intense conflict and protest in April 2009. In the process of addressing the conflict, the township allegedly sent 2000 questionnaires to local residents and none of the 1,700 effective responses agreed to subsidence and relocation. It was announced later in April 2009 that the township (the center of the economic activities in the local area) would not be "sacrificed". However, the villages near the township that had already suffered from subsidence still faced uncertainty in terms of relocation plan.

Gubei Township is home to and famous for its vinegar production. However, the coal mining activities and land subsidence changed the local communities' forms of livelihood. Over the years, more than 13,000 people across five villages in Guqiao Township were relocated. While local residents received certain financial compensation, it was difficult to adapt to the new forms of life without access to farming land and their traditional forms of livelihood.

The coal mining and related companies' environmental pollution issues also emerged in the media due to local residents' complaints, including the pollution from wastewater, solid waste such as coal gangue, coal transportation, among others. The local environmental protection bureau in Fengtai County was acting irresponsibly in face of the pollution and the journalist's inquiry.

While it is legally mandatory for coal mining companies to implement land reclamation, the government (above county level) usually takes up the responsibility of addressing the historical land subsidence issues. It also takes years for the subsided land to become stable after the coal

mining activities take place, which makes it even more difficult. As a result, most of the villages around Guqiao Township have been buried in water, with local residents relocated to newly built buildings around or more than 10km away. Only a few stayed behind to pursue fishing or aquaculture as an alternative to farming. In the early years after relocation, some residents would take boats to come back to their old "homes" on special occasions such as Qingming Festival (清明节) to pay tribute to their ancestors whose tombs had sadly sank into the water due to land subsidence. It was reported that the villagers could only watch helplessly as the ancestral graves sank into the water.

In contrast to the histories buried under the water, new development was also under incubation at Guqiao. In December 2017, it was reported that the first phase of the 150MW floating solar project at Guqiao township, with an investment of 1.5 billion yuan, was successfully connected to the grid for power generation. As I traveled around Huainan during a brief fieldwork trip in 2023, the post-mining landscapes have become less distinguishable as huge areas of lakes created by land subsidence are "restored" as parks and tourism sites. The displacement and dispossession caused by land subsidence seems also invisible, as the villages disappeared underground/under water and one of the world's largest floating solar parks replaced the farmlands. However, the loss of ancestral graveyards under water and the void in sense of belonging could hardly be restored. As Armiero (2021) discussed, cemeteries can be silent storytellers of the Wasteocene. These disappeared cemeteries under the water and local people's initiatives of taking a boat to find a place where they could stand on the solid ground and pay tribute to their ancestors also forms a silent but strong defense of their traditions and values.

2.6 Conclusion

The coal dissent from the bottom up has almost been invisible under China's political context where civil society tends to adopt a depoliticized self-censorship approach. This study builds on empirical evidence from the EJAtlas and makes visible the unequal distribution of incommensurable environmental, livelihood, health and cultural impacts aggravated by the development of the coal commodity chain in China manifested through various forms of ecological distribution conflicts.

The concept of environmental justice provides a useful framework to understand these conflicts arising from the unequal distribution of socio-environmental impacts as well as procedural injustices in China's coal-based economy. Future endeavor could extend this research with an inquiry into publicly available data sources such as public interest litigation and Environmental Inspection by the Central Government, and further expand the coverage of coal-related ecological distribution conflicts in the EJAtlas.

Over the years, the embedded activism of civil society in China has gradually evolved into more diverse strategies that address broader public interest and include potentially influencing policy making and legislation. These have shaped the sustainability dimensions of the coal sector with both direct and indirect outcomes such as translating the social and environmental impacts on communities into business costs for the companies and enhancing public information disclosure and public participation. These indicate that the evolving socio-political context in China can indeed be both restrictive and conductive to ecological distribution conflicts. The top-down greening of the state has enabled civil society to play an increasingly critical role in greening the coal industry, nevertheless at a compromise that coal will continue to be an important source for energy and industrial sectors. As a result, the same environmental justice concerns as outlined in this study may remain or need to be addressed from a restorative justice perspective, which calls for continued and collaborative forms of environmental activism from the bottom up.

Appendix 2-A List of cases under analysis

Case ID	Case name in EJAtlas	Province	Category	Year	Summary
M1	Haerwusu coal mine accused of unlicensed land use, Inner Mongolia, China	Inner Mongolia	Coal mining	2007	Haerwusu coal mine, the largest open-pit coal mine in China, was accused of unlicensed land use. Its operations also faced challenges due to delay in land acquisition.
M2	Coal mining operation led to subsidence in Hejin, Shanxi, China	Shanxi	Coal mining	2017	Coal mining in Hejin led to subsidence and left local residents with unsatisfactory relocation plans and livelihood interruptions.
M3	Coal mining led to land subsidence in Guqiao, Fengtai County, Anhui Province, China	Anhui	Coal mining	2016	Guqiao coal mine of Huainan Coal Mining Group led to land subsidence and residential area submerged under water, which interrupted local communities' livelihood.
M4	Shicaohe coal mining conflict, Yunnan, China	Yunnan	Coal mining	2009	Shicaohe coal mine dispossessed local farmers of farmland and led to blockade by local villagers which escalated into violent conflicts in August 2009.
M5	Illegal mining at Bainaimiao Coal Mine in Siziwang Banner, Ulanqab, Inner Mongolia, China	Inner Mongolia	Coal mining	2018	The land acquisition and pollution caused by illegal mining and coal-seam fire at Bainaimiao Coal Mine led to environmental, social and health concerns among local herders. Environmental NGO CBCGDF filed a public interest litigation in July 2018.
M6	Inner Mongolian herder run over by coal truck driver led to conflicts in the region, China	Inner Mongolia	Coal mining	2011	In May 2011, one herder in a group blocking coal transportation was dragged and killed by a coal truck, which fuelled the tension between mining groups and herders.

M7	Wuguiqiao Coal Mine in Zhumadian, Henan, China	Henan	Coal mining	2014	In May 2014, hundreds of local farmers blocked the gate to the coal mine in Wuguiqiao to protest against the coal mines that led to the subsidence of villages, flooding of fields, and cracking of houses.
M8	Illegal coal mining at Muli coalfield in Qinghai, China	Qinghai	Coal mining	2014	Greenpeace published an investigation report on the illegal coal mining activities of the Muli coalfield in August 2014, disclosing the significant pollution and damage caused to the ecological environment.
M9	Xiegou coal mine, Lvliang, Shanxi, China	Shanxi	Coal mining	2016	Over a thousand coal miners in Shuangyashan, Heilongjiang, China staged a protest in March 2016 in response to a provincial governor's mistaken claim about their labor situation in the coal sector and requested payment of delayed salary.
M10	Coal mining operation without permit at Dananhu, Hami led to public interest litigation in Xinjiang, China	Xinjiang	Coal mining	2016	The illegal construction of the Dananhu No.2 coal mine project started without official permit in September 2013, which led to administrative penalties and an environmental public interest litigation filed by two NGOs in China.
M11	Coal mining and livelihood impacts in Zhanggou Village, Xinzheng, Henan, China	Henan	Coal mining	2016	Coal mining and over-exploitation of deposits resulted in multiple social-political problems at Zhanggou Village.
M12	Water pollution caused by coal mines and gas field at Xiaohaotu, Shaanxi, China	Shaanxi	Coal mining	2018	A performance art exhibition by Brother Nut brought public and government's attention to the water pollution at Xiaohaotu Township at the border of Shaanxi and Inner Mongolia in

					China, caused by coal mines and a gas field.
M13	Baiyinhua Coalfield, Inner Mongolia, China	Inner Mongolia	Coal mining	2021	The four coal mines at Baiyinhua coalfield have led to the pollution and ecological degradation of the grassland and caused damage to the environment and livelihood of local pastoralists. Chinese NGO CBCGDF filed public interest litigations in response.
P1	Hainan residents against construction of coal-fired power plant, China	Hainan	CFPP	2011	Hainan residents protest against a 300 million dollar coal-fired power plant since 2011 and are violently repressed.
P2	Huaneng Haimen coal-fired power station, China	Guangdong	CFPP	2011	Protests and blockades for stopping a coal power station did not achieve their goal. Repression and violence against protesters put at place while China expands energy generation capacity.
P3	Huadian Pingjiang coal-fired power station, Hunan, China	Hunan	CFPP	2014	More than 10,000 people demonstrate against a large coal-fired power plant at Pingjiang, holding banners with remarks of "President Xi: We do not want the short-term development at the cost of ecological environment".
P4	Heyuan coal-fired power plant (Phase II), Guangdong, China	Guangdong	CFPP	2015	April 2014, residents staged sit-ins, organized marches after collecting tens of thousands of signatures to protest the expansion of Heyuan CFPP and the expected increase in pollution.

P5	Friends of Nature (FoN) sued State Grid for refusing to purchase clean energy in Ningxia, China	Ningxia	CFPP	2016	In August 2016, Friends of Nature (FON) sued State Grid Ningxia Electric Power Co since the company refused to purchase all of the electricity produced from wind and solar and the amount not produced with renewable was substituted with coal-fired power.
P6	Friends of Nature sued State Grid for refusing to purchase clean energy in Gansu, China	Gansu	CFPP	2016	In August 2016, Friends of Nature (FON) sued State Grid Gansu Electric Power Co since the company refused to purchase all of the electricity produced from wind and solar. The amount not produced with renewable was substituted by coal-fired power.
P7	Public Interest Litigation against Yannan Thermal Power Plant for excessive emissions in Inner Mongolia, China	Inner Mongolia	CFPP	2016	In 2016, All-China Environment Federation filed a PIL at the Hulunbuir Intermediate People's Court, sueing the Yannan Thermal Power Plant of Dayan Mining Industry Group for excessive pollutant emissions.
K1	Protecting Tongpo sacred mountain from coal coking mill, Qinghai province, China	Qinghai	Coking	2005	Qinghai Qinghua Coal Chemical coking plant was built at the foot of Mount Tongpo, a sacred mountain for local Mongols, despite resistance. Cultural values and livelihood are sacrificed. The company kept operating with environmental violations.
K2	Residents protest against foul air in Weiyuan County, Sichuan, China	Sichuan	Coking	2014	Protest against pollution in Weiyuan, Sichuan turned violent as residents demand the shutdown of factories blamed for pungent air. Students from the neighbouring middle school pushed down the school gate and tried to rush out joining the protest.

K3	Public Interest Litigation against Guizhou Qiangui Tianneng Coking Co. in Liupanshui, Guizhou, China	Guizhou	Coking	2015	In 2016, All-China Environment Federation (ACEF), an environmental NGO in China, filed a PIL against Tianneng Coking Co. on an air pollution responsibility dispute.
K4	Public Interest Litigation against Antai Coking Co. in Jinzhong City, Shanxi, China	Shanxi	Coking	2016	All China Environment Federation filed a public interest litigation lawsuit against Shanxi Antai Group due to an air pollution dispute in 2016 and reached settlement in 2018. The company continued to be exposed to complaints by local residents.
C1	Datang Duolun Coal Chemical Project, Inner Mongolia, China	Inner Mongolia	Coal chemical	2012	Since the beginning in 2006, the residents nearby suffered from and complained about land dispossession and environmental pollution issues such as wastewater discharge, air and noise pollution and coal ash dust.
C2	Tianji Coal Chemical Industry Group aniline leakage in Changzhi, Shanxi, China	Shanxi	Coal chemical	2012	An aniline leakage accident in Changzhi, Shanxi Province raises concerns about water stress and pollution caused by coal chemical companies.
C3	Illegal industrial discharge from coal chemical plant threatened villagers' livelihood in Yulin, Shaanxi, China	Shaanxi	Coal chemical	2012	Villagers in Yanggou village in Yulin, Shaanxi Province, China, repeatedly questioned and contested the illegal discharge of sewage by nearby coal chemical enterprises in the Yuheng Industrial Park.
C4	Datang Coal-to-Gas project in Hexigten Banner, Inner Mongolia, China	Inner Mongolia	Coal chemical	2014	In November 2014, Greenpeace published a report pointing to the environmental pollution issues of the Datang Keqi Coal-to-Gas (CTG) project, including illegal waste water

					discharge and air pollution.
C5	Shenhua's water intensive coal chemical project in Ordos, Inner Mongolia, China	Inner Mongolia	Coal chemical	2015	On 23rd July 2013, Greenpeace published a report titled "Thirsty Coal 2: Shenhua's Water Grab", which put the excessive water extraction and illegal wastewater discharge of China Shenhua's Coal-to-Liquid project in Ordors, Inner Mongolia under scrutiny.
C6	Public Interest Litigation against Tianji Lu'an Chemical due to air pollution, Shanxi, China	Shanxi	Coal chemical	2016	China Biodiversity Conservation and Green Development Foundation (CBCGDF) filed the first env public interest litigation in Shanxi against Tianji Lu'an Chemical on the ground of air pollution in 2016, which came to a mediation agreement after 5 years.

Chapter 3. Eliciting valuation contests in the coal value chain from the lens of environmental public interest litigation (PIL) in China

This chapter examines environmental justice in the coal value chain from the lens of public interest litigation cases and processes in China. Three brief case studies complement the discussions and draw on insights from my fieldwork and participant observation at court hearings. The chapter is adapted from a paper with the same title that has been submitted to the *Journal of Business Ethics* and is under review.



Coal gangues were piled at the roadside in preparation for repairing the road after a storm in an area that has suffered from land subsidence due to coal mining in Shanxi Province. The young guy in the photo and his family live next to a coal mine and operate a small grocery shop. In face of the sharp increase of coal price in September 2021, they turned to collecting the gangues at the roadside for heating. Before we bid farewell to the family, the father sighed while looking at the surrounding mountains: "What a pity. It used to be a beautiful place (mountain)." ("多好的山啊，可惜了"). Photo credit: Bowen Gu (2021).

Abstract

China burns half of the coal produced in the world. As of 2023, coal still makes up more than 50 percent of China's total primary energy use. The coal value chain in China, dominated by state-owned enterprises, poses significant and enduring impact on the environment, health and livelihoods of local communities, as well as the prospect of global climate goals. While there has been a global trend of coal dissent, little research has been done regarding anti-coal environmental justice movements in China. This chapter aims to fill this gap through the lens of public interest litigation (PIL). Since the revised Environmental Protection Law came into effect in 2015, NGOs in China have increasingly utilized environmental PIL to rightfully resist the polluting and socially irresponsible behaviors of corporates. This study has curated a unique dataset of 64 PIL cases filed by NGOs against coal-related (coal mining, coal-fired power plant, coking and coal chemical) corporates between 2013 and 2023 based on a comprehensive inquiry into court proceeding databases. Building upon a comparative political ecology analysis of the 64 cases and semi-structured interviews during fieldwork in China, this chapter demonstrates various forms of corporate social irresponsibility across the coal value chain revealed by the PILs. It shows varied outcomes of PILs constrained by their socio-political context and the procedural injustices faced by NGOs across the PIL process, as well as the limitations of PIL in reflecting the plurality of valuation languages that would be expressed in other forms of ecological distribution conflicts.

Key words: Public interest litigation, China, Coal, Corporate Social Irresponsibility, valuation language, cost shifting

3.1 Introduction

China has gone through rapid economic growth in the past decades. In the meantime, China has become the world's largest energy consumer as well as the largest consumer of coal. From 1990 to 2018, China increased its coal consumption from 0.99 billion tons to 4.64 billion tons (BP, 2019). As of 2023, coal consumption continues to increase in China, with coal still making up more than 50 percent of the country's primary energy source (IEA, 2023). Coal firms inevitably produce "externalities" throughout the process of extraction, transport, and burning at CFPPs and coal chemical plants. In Ecological Economics, the approach of "externalities as market failures" has been contested by the theory of systematic cost shifting (Kapp 1975; Martinez-Alier 2002). Some methods and tactics have been applied by individual citizens and civil society organizations to make companies responsible for the shifted environmental and health damages (Martinez-Alier, 2023). Public interest litigation (PIL) is one of such tactics that attempt to make the cost shifting visible in China.

This chapter takes a closer look at the civil environmental public interest litigations filed by Chinese NGOs to fight with the highly carbon intensive industry of coal, to support the affected communities and recover the damage caused to the environment by the coal value chain in China. Based on a comparative political ecology analysis of 64 coal-related (coal mining, coal-fired power plant, coking and coal chemical) PIL cases and interviews with actors involved in the PILs in China, this paper aims to understand the role of PILs, especially those filed by NGOs, in revealing the cost shifting behaviors in the coal value chain.

The PILs also provide a unique lens for understanding ecological distribution conflicts (EDCs) in the authoritarian context of China, where EDCs don't always appear as direct confrontations or mass demonstrations. The PIL scheme was initially proposed by the government to address the "tragedy of the commons" (Yang 2023). It is believed that NGOs, through engaging with the public and fostering government information disclosure in the process of the litigation, could potentially make visible the irresponsible behaviors of corporates and hold them accountable through legal measures.

Li and O'Brien (2006) coined the term "rightful resistance" when studying rural villagers' popular resistance that aimed to counter the irresponsibility of local cadres that denied their rights that were

legally recognized at the central government level. In this study I consider PIL as an alternative form of rightful resistance initiated by NGOs to counter the irresponsibility of corporates, especially those that have been unconstrained under the protectionism of local governments (Shen & Jiang, 2020). This form of resistance acts within the state permitted legal arena, with an aim to negotiate for socio-ecological damage compensation and recovery in response to corporate social irresponsibility (CSIR).

Like other forms of resistance, pursuing environmental justice through PIL is not without obstacles. Existing studies show mixed effects of environmental litigation. On one hand, effective litigation strategies, when applied together with other tactics, could reinforce environmental activsm outcomes and boost environmental justice (Scheidel et al., 2020). Yet it could also potentially deepen power inequalities in the lengthy litigation processes (Conde et al., 2023). It is also an expensive process in terms of financial and human capital (Conde et al., 2023; Sovacool et al., 2022).

Building upon existing scholarship on environmental litigation, especially PILs, this paper aims to address the following questions. (1) To what extent are PILs filed in the coal value chain in China? (2) What forms of corporate social irresponsibility in the coal value chain do PILs reveal? (3) To what extent have PILs elicited the recovery of public interest, including the compensation of ecological damage and social costs? (4) What valuation languages are used in resulting compensation schemes?

This chapter aims to contribute to a growing body of literature that explores how ecological distribution conflicts take shape in different socio-political contexts and reflect different languages of valuation based on a comparative political ecology approach (Avci et al., 2010; Cardoso, 2018; Demaria, 2017; Lele et al., 2023). It also opens a new path for examining corporate cost shifting based on public interest litigations in China's context. While existing empirical studies on PIL in China mainly adopted a descriptive and multiple case study approach to understand the role of PILs in specific areas such as energy justice and the variations of PIL outcomes (Jin, 2021; Ren & Liu, 2020; Wang & Lo, 2022), there is still little understanding of the impact of PILs in revealing and changing corporate (irresponsibility) behaviors from the business economics discipline. This study makes a first attempt to fill this gap by conducting a sector-specific comparative political ecology analysis of PILs. Through combining the comparative analysis of PIL cases with

interviews and participant observation, this paper also contributes to a grounded understanding of cost shifting and valuation as a dynamic process embedded in the interaction and negotiation among state and non-state actors (Ho & Edmonds, 2011; O'Brien, 2023; Ren & Liu, 2020).

3.2 Public interest litigation and environmental justice in China

3.2.1 Ecological distribution conflicts and environmental justice with Chinese characteristics

As also discussed in the previous chapters, the term ecological distribution conflict was coined by Martinez-Alier and O'Connor (1996) to describe the social conflicts emerging over the unequal distribution of environmental burdens and benefits, such as the uneven exposure of diverse social groups to pollution, or their loss of access to natural resources such as land. It has been widely used in ecological economics to analyze the struggles over multiple, incommensurable values attached to the environment, which become visible through social mobilizations and conflicts (Martinez-Alier et al., 2010b). Compared to "economic distribution conflicts" over profits, prices or rents, it is argued that ecological distribution conflicts cannot be necessarily resolved through economic means, such as monetary compensation, fair rent distribution, or correct prices. In essence, ecological distribution conflicts are conflicts over valuation, either inside a single standard of value or across plural values (Martinez-Alier, 2009; Zografos, 2023). They showcase how certain languages of valuation such as livelihood, Indigenous rights, sacredness, which used to be powerful in other contexts, are becoming worthless in the generalized market system with the money-reductionism approach (Martinez-Alier, 2009).

In an authoritarian state like China, ecological distribution conflicts don't always take the shape of confrontations such as protest as seen in many other countries. Studies have characterized environmentalism in China as "embedded activism", "soft confrontation", or "greening without conflict" and indicates a relatively gradual and mild approach shying away from direct confrontation with the state (Ho, 2001; Mah & Wang, 2017; Wang & Wang, 2020; Zhuang & Wolf, 2021). This study aims to contribute to this literature by illustrating the ecological distribution conflicts that have emerged across China's coal value chain, as amplified through emerging public interest litigations.

The concept of environmental justice (EJ), concerned with distributional issues as well as with other justice dimensions, such as the recognition of diverse values and worldviews at play in conflicts, procedural fairness in decision-making, and other aspects (Schlosberg, 2004, 2013), offers a useful lens to understand the underlying reasons (i.e. environmental injustices) of why ecological distribution conflicts emerge. Existing studies that examine environmental justice concerns from China's perspective have focused on three main local characteristics that resonate in the coal commodity chain, as also discussed in the previous chapter: east-west regional environmental disparity, urban-rural environmental disparity, and the vulnerability of certain marginalized groups, e.g., migrant workers, to environmental risks (Liu, 2012; Mah & Wang, 2017). More specifically drawing insights from public interest litigations filed by NGOs, Wang and Lo (2022) referred to "Confusian justice" to differentiate the Chinese understanding of justice from the Western liberalism justice tradition and highlighted the importance of collective interest rather than the fair treatment of individuals. Some legal scholars have also argued for redefining environmental justice in China's legal and socio-political context, with a focus on "good environmental governance" instead of bottom-up environmental movements (Mah & Wang, 2017). These studies have illustrated the plurality of environmental justice conceptions when applied to specific locations and point to the importance of adapting the environmental justice framework to China's local context. They also suggested the emerging public interest litigations as fertile ground to explore the grassroots understanding of environmental justice in China's context.

3.2.2 Environmental litigation and environmental justice

The environmental justice scholarship has presented a mixed view on environmental law and litigation, mostly with skepticism. On the positive side, research shows that legal strategy, when complemented with certain tactics, can improve the success of environmental justice movements (Scheidel et al., 2020). However, the legal system is also seen as a cause of "disproportionate burdens and as a possible impediment to the achievement of social justice" (Kaswan, 1997, 2017). This is echoed by a recent study that looks into the role of judicialization in environmental justice movements and unintended consequences of environmental litigation (Conde et al., 2023). The authors termed this "slow justice" to show the long and wandering process of environmental litigations that can reinforce injustices.

Kaswan (1997) discussed the gaps between environmental law and environmental justice, including how environmental laws became the cause of environmental injustice and how environmental laws served as a limited mechanism for addressing environmental justice concerns. The gap was already evident in the legislation process of public interest litigation in China. During the consultation of the revision of the Environmental Protection Law in 2014, many scholars made proposals to expand the scope of eligible plaintiffs to more NGOs and also the general public. However, the final version of the updated EPL narrows down to NGOs that meet certain criteria and excluded the general public from the eligible plaintiff scope (Wang 2021).

The restriction of plaintiff eligibility contrasts PIL schemes or alike in other countries such as India and the United States. In the United States, there is no particular type of public interest litigation, but any citizen can file citizen suits. The Environmental Protection Agency (EPA) in the United States has both the right and responsibility for filing lawsuits and supervising the activities of corporates in environmental aspects (Wang, 2021). On the other hand, in India, PIL was developed in the 1970s with the initial goal to provide redress to those that tend to be vulnerable to injustices and give them a place to share their voices (Bhuwania, 2014). PILs have also been seen in the coal sector in India, the second largest coal producing country after China. For example, a PIL case filed by Mr. Haradhan Roy of Colliery Mazdoor Sabha against Eastern Coalfield Limited (ECL) for failure to maintain an appropriate standard of environmental care (Lahiri-Dutt, 2014). In another case, an Indian NGO, Goa Foundation, alongside five other citizens of Vasco and the local fishing community, filed a PIL against the coal transport at Mormugao port in Goa (Goa Foundation, n.d.). In Europe, ClientEarth, together with 60 farmers that joined the case over its duration, sued a 1.6GW coal-fired power plant planned by Polnoc in Poland, which led to the suspension of the project based on the ruling of Poland's Supreme Administrative Court (ClientEarth, 2019).

In order to understand the outcomes and impacts of PIL cases, it is important to not only consider the explicit success or failure of the legal cases based on court ruling, but also situate them in a broader interpretation of environmental justice, including distribution, recognition, and participation, and whether these aspects are justified in the legal process as well as the final court decision (Stern, 2010, 2011). Despite the constraints of PILs in China compared to other countries, it can be seen from case studies, including those analyzed in this paper, that PIL does open a door

for NGOs to interact with corporates on environmental pollution issues and negotiate for consensus building with different actors, which would otherwise not be possible (Ren & Liu, 2020).

3.2.3 Contextualizing the development of public interest litigation in China

Studies show that China's regulatory landscape has become increasingly pluralized, which provides space for nonstate actors to perform environmental legal mobilization (van Rooij et al., 2016; Xiao & Ding, 2023). NGOs' impact litigation is considered as one of the three major forms of judicial expansion in environmental protection in China, alongside the state-driven approach of PILs filed by procuratorates and the hybrid approach of NGO and judicial institution collaboration (Wang & Xia, 2023). NGOs' legal standing as plaintiff in PILs is primarily built upon two legislations, namely the Civil Procedure Law (CPL, Article 55) that was revised in 2012 and the new Environmental Protection Law (EPL) that took effect in 2015 (Ren & Liu, 2020; Xiao & Ding, 2023). With the new EPL that took effect on 1 January 2015, environmental NGOs that have operated for 5 years without violation of law became eligible to file public interest litigation lawsuits against "acts of polluting or damaging the environment that have harmed the public interest." (Chu, 2018). This was the result of years of struggles to grant the eligibility of filing EPIL to grassroots NGOs.

Figure 3-1 shows a timeline with key milestones related to the development of the PIL system in China. Not only NGOs, but also procuratorates (public prosecutors) are eligible to file PILs in China. The pilot procuratorate PIL program was launched half a year after the establishment of NGOs' eligibility to file PILs and was soon expanded across the country. Procuratorates have the power to file administrative PILs in addition to civic PILs, which NGOs are limited to. This has led to a competitive yet sometimes collaborative relationship between the two major protagonists of PILs. Another important development is the Eco-environmental Damage Compensation System (EEDCS). As compensation evaluation questions arise from PILs, the EEDCS seems a compliment to the PIL. However, the EEDCS performed by local environmental bureaus started to conflict with PILs filed by NGOs, as the latter needs to give way to the former process even when a PIL is already in the litigation process. In a nutshell, despite the positive political opportunity window opened by the revision of the Civil Procedure Law and Environmental Protection Law, NGOs have faced significant competition and struggles in filing PILs (Xiao & Ding, 2023).

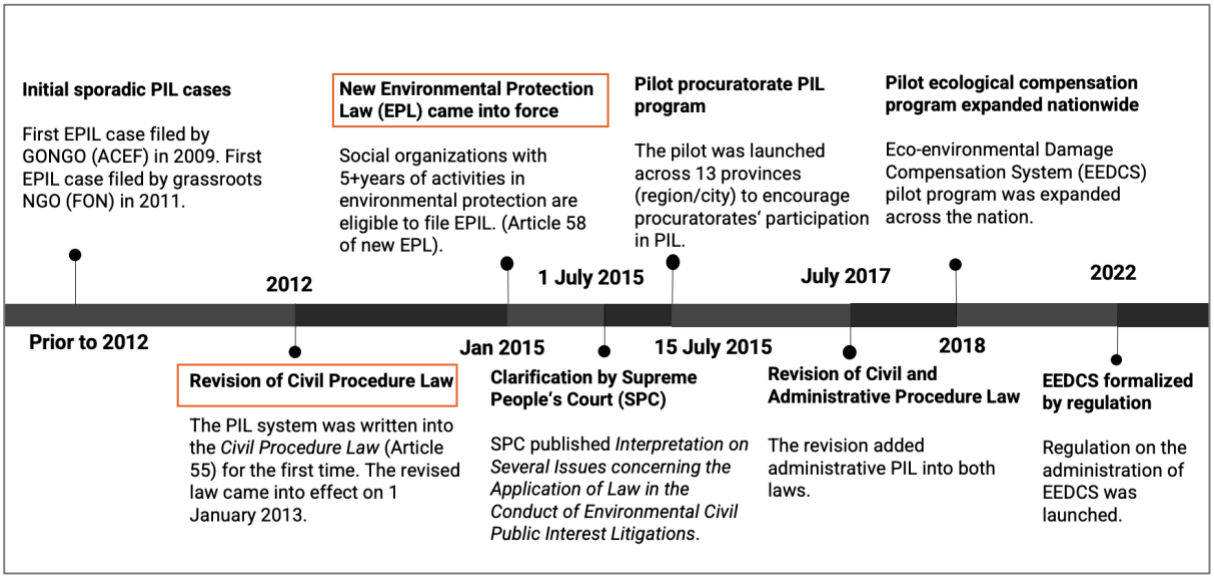


Figure 3-1 Timeline of important regulations and policies related to PIL in China. Prepared by author.

On the other hand, individual citizens are not eligible to file PILs. Thus, when communities observe or suffer from socio-environmental harm due to corporate activities, they need to resort to NGOs to file PIL when the claim is beyond private interest. According to the criteria set in the new EPL, there are more than 700 social organizations (社会组织, a Chinese term that is increasingly used by the government, to describe entities equivalent to NGOs) eligible for filing PILs. However, it was estimated that only 20 NGOs were involved in PILs between 2015 and 2017, and only 4 out of the 9 involved in 2015 remained in filing PILs in 2016 (Li, 2017; Ren & Liu, 2020).

3.3 Methods and materials

3.3.1 Data collection and analysis

The data collection is primarily based on two databases: the People's Court Announcement (人民法院公告网, accessed at rmfygg.court.gov.cn) and the China Judgements Online Database (中国裁判文书网, accessed at wenshu.court.gov.cn). Both databases are maintained by China's Supreme People's Court, which mandated that courts shall publish their finished cases online from the beginning of 2014 (Yang & Ho, 2020). The two databases complement each other in terms of

coverage. The People's Court Announcement includes information related to cases that have been filed by NGOs but not yet heard by the court or have reached mediation outside of court, while the China Judgements Online database covers the results of cases that have come to a court decision. *Figure 3-2* presents the customized key word search strategies for filtering PIL cases related to the coal value chain for the two databases respectively. The search was first conducted in March 2022 and then repeated in December 2023 to include more recent cases.

People's Court Announcement (人民法院公告网)		**China Judgements Online (中国裁判文书网)**	
Announcement category	**Key word**	**Case category**	**Key word in full text search**
Public interest litigation (公益诉讼) or Public interest litigation announcement (公益诉讼案件公告)	"coal (煤炭)" or "coal power (煤电/火电/热电)" or "coking (焦化)", "coking coal (焦煤)" or "coal mine (煤矿)" or "coal chemical (煤化工)"	Civil case (民事案由)	"Public interest litigation (公益诉讼)" AND ("coal (煤/煤炭)", or "coal power (煤电/火电/热电)" , or "coking (焦化)" or "coking coal (焦煤)" or "coal mine (煤矿)" or "coal chemical (煤化工)")

Figure 3-2 Litigation database keyword search strategy. Prepared by author.

Other supplementary data sources include the Global Atlas of Environmental Justice (EJAtlas.org), NGO websites, newsletters, and academic literature that entail updates about the background and progress of PIL cases. This process of secondary data collection is complemented by interviews with actors involved in PIL cases, which is described in more detail in the following section.

Further screening was conducted based on the availability of publicly available information for each case. Certain cases were removed from the analysis scope, where the court judgement could not be accessed through either of the two databases or other publicly available sources. The final list of cases under analysis, which took place between 2013 and 2023, and the corresponding case IDs, are provided in Appendix 3-A. The cases, when referred to in this chapter, would be mentioned in the format of a combination of alphabetical and numeric ID. The alphabetical ID represents the type of the corresponding industry, including "M" for coal mining, "P" for coal-fired power plant, "K" for coking, and "C" for coal chemical.

A variety of data were coded based on secondary data, primarily the civil complaint document(s), the settlement agreement, or the court adjudication of each PIL case. These include the name of defendant(s) and plaintiff(s), the supportive parties, the year of filing and resolution, the name, location and level of the trial court(s), main claims of plaintiffs, and the outcomes of the settlement

or adjudication. When the same plaintiff sued multiple defendants on grounds of exact same claim(s), the PILs are aggregated as one case study (e.g., in case M5 and P16).

3.3.2 Interviews and participant observation

Interviews were adopted as part of the data collection method because they yield rich, in-depth qualitative data, which helps to enrich and verify the secondary data (O'Leary, 2017). As Kaswan (1997) wrote, "a legal victory against an unfair decision…is only one element in the pursuit of the broader social, political, and cultural change necessary to achieving political processes that fairly consider all citizens' interests". Semi-structured interviews and participant observation helped me understand the broader socio-political context where PILs were taking place and the process of the PILs, as well as to get first-hand information related to PIL cases that is not available in secondary data sources.

The 18 interviewees include NGO representatives, lawyers, government officials, and local community members (see Appendix 3-B for more details of the anonymized interviewees). The interviews were conducted in an open-end semi-structured format, with a set of pre-determined interview questions, while specific questions were adapted for each interviewee regarding their expertise area and the PIL cases that they are related to. The interviews were carried out using a snowball sampling technique, which allowed identifying additional relevant interviewees.

In addition, participant observation was conducted through attending PIL court hearings and conducting site visits with environmental NGOs and lawyers in preparation for filing PILs. Participant observation has been widely applied in anthropology and more recently applied in litigation research (Kawulich, 2005; H. A. Moore & Friedman, 1993). Through observing the responses from different actors during court hearing, including the plaintiff, the defendant and the judge, and the pre-trial preparations, I have gained better understanding of the dynamics around PILs as a fluid process with continuous negotiation and strategic decision making beyond what can be expressed in the final court judgement result.

3.4 Analysis results

3.4.1 Geographical distribution of coal-related PIL cases in China

A total of 64 PIL cases have been identified across the coal value chain, including cases of coal mining (18), coal-fired power plants (20), coking plants (17) and coal chemical plants (8). As can be seen in Figure 3-3, Inner Mongolia and Shanxi together account for more than half of coal related PIL cases in China. This to some extent corresponds to the patterns of the geographical distribution of coal reserves and production, with Inner Mongolia and Shanxi among the top three coal production provinces. They are followed by Guizhou, which is considered as the coal capital of Southwest China and home to five coal related PIL cases. Shaanxi is an exception, as it is also among the top three coal production provinces but only has one coal related PIL case to date. Most of the cases are located at or in the proximity of coal frontiers in rural areas in northern China and concern communities that have been exposed to various forms of pollution for years.

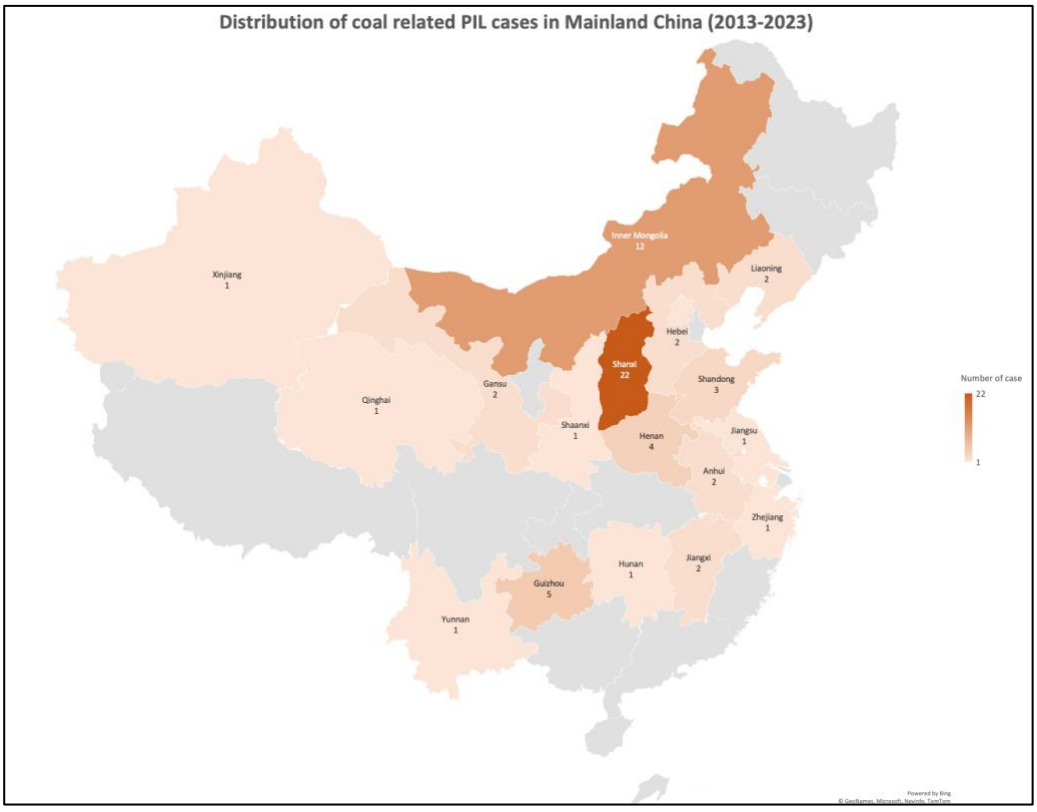


Figure 3-3 Distribution of coal-related PIL cases in Mainland China between 2013-2023 (n=64). Prepared by author.

3.4.2 PIL claims and forms of corporate social irresponsibility

Coal related PILs build upon a few major categories of claims regarding corporates' illegal or irresponsible behaviors. These include air and water pollution, solid waste discharge, grassland destruction, illegal mining and soil contamination. In recent years, a number of climate related cases emerged on grounds of falsified carbon data and inadequate carbon credit purchase, as well as solar and wind curtailment. *Table 3-1* provides more details regarding the categories and number of occurrences of each category of corporate irresponsibility. Some cases involve multiple forms, thus the total number of occurrences is more than the number of cases.

Table 3-1 Major forms of corporate social irresponsibility from the lens of PILs (n=64)

Major forms of corporate irresponsibility	**Explanation**	**Number of occurrences**
Air pollution	Air pollution due to lack of air pollutant control measures, or coal seam fire at coal mines	45
Water pollution	Ground water pollution or depletion caused by mining, or the discharge of coal mine drainage water	23
Solid waste discharge	The illegal or improper discharge or storage of solid waste, including coal gangue, at undesired locations	5
Climate impact	Failure to purchase legally mandated carbon credit, wind and solar curtailment, or falsifying carbon data	4
Grassland destruction	The occupation and destruction of grassland due to mining activities	3
Illegal mining	Mining without acquiring the legal permit for operations, mostly due to lack of legally mandated environmental protection measures	3
Soil contamination	Soil contamination due to discharge of solid waste or wastewater	3

While pollution or other irresponsible corporate activities are one prerequisite for PILs to be filed, not all polluting corporates ended up in PILs or environmental litigations. In fact, only a handful of the environmental pollution firms ended up in PIL cases, as indicated by the "dispute pyramid" metaphor which suggests that only a fraction of grievances enter the legal system (Miller & Sarat, 1980). As also seen in case studies in Chapter 3, many pollution victims choose alternative channels such as petition and filing online complaint, instead of going to court. Civil society organizations also lack the capacity to litigate against large number of companies. As a result, a selective sample of polluting corporates become PIL defendants. NGO representatives indicated that they mainly rely on leads from volunteers, media reports, as well as administrative penalty disclosed by the authorities as sources for PILs (Interview 3,4,12, NGO representatives).

Different NGOs have different strategies for choosing the target defendant. An interviewee from one of the largest grassroots NGOs indicated that they focus on cases that have relatively high social impact and limit the number of cases they file, also as they rely on a handful of in-house lawyers (Interview 3, grassroots NGO representative). Another grassroots NGO involved in one of the highest numbers of PILs chose the "quantity" strategy and files PIL in most cases when they could find collaborating lawyers. They also rely on a broad network of volunteers across the country to share pollution information and follow up on site investigations.

One common finding across different cases is that the defendant companies tend to have a long history of administrative penalties, including fines and orders for the suspension of production activities, which provides a basis for proving corporate irresponsibility. However, the level of acceptance of the court towards such forms of evidence varies. It could also be seen from court disclosure that companies typically deny such administrative penalty evidence with excuses such as temporary non-compliance instead of intentional violation of environmental standards (e.g., case P8). Such kind of denial can be understood as one of those "counter-insurgency" tactics that corporates adopt in response to actions "from below" (Martínez-Alier, 2023; Verweijen & Dunlap, 2021). The PIL related disclosure analyzed in this study also contributes to broader "counter-reporting" efforts that look beyond corporate narratives to reveal corporate social (ir)responsibility (Bontempi et al., 2023).

3.4.3 Overview of PIL protagonists

As also discussed in the previous chapter, NGOs in China can be broadly divided into two categories: government-sponsored NGOs, or GONGOs, and grassroots NGOs (Wu 2009; Yang and Ho 2018). The first category, GONGO, refers to organizations that have strong government ties and were established to support government policy consultation and implementation (Wu, 2009). Both GONGOs and grassroots NGOs can be eligible as plaintiffs to file PILs. Based on the cases under analysis, most of the NGO plaintiffs that are involved in at least three PILs are registered in Beijing, as shown in *Table 3-2*. However, they work with local volunteers and partner organizations spread across the country. There are multiple cases (e.g., M1, M17, P15, C1) where NGOs collaborated with each other as joint plaintiffs. Legal aid organization Center for Legal Assistance to Pollution Victims (CLAPV), which is considered as a university law clinic (Conde et al., 2023), also joined as a supportive plaintiff in three cases.

Table 3-2 List of NGOs involved as plaintiffs in coal-related PILs

Type	**Civil society organization**	**Headquarters location**	**Number of cases**
Grassroots	Beijing Huanyou Science and Technology Research Center	Beijing	10
GONGO	China Biodiversity Conservation and Green Development Foundation (CBCGDF)	Beijing	10
Grassroots	Jinhua Green Ecology Culture Service Center	Zhejiang	10
Grassroots	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing	Beijing	8
GONGO	All-China Environment Federation	Beijing	4
Grassroots	Beijing Changping District Multiple Intelligence Environmental Research Institute	Beijing	4
Grassroots	Beijing Grassland Alliance Environmental Protection	Beijing	4

	Promotion Center		
Grassroots	Friends of Nature	Beijing	4
GONGO	Shandong Environmental Protection Foundation	Shandong	4
Grassroots	Chongqing Liangjiang Voluntary Service Center	Chongqing	2
Grassroots	Center for Legal Assistance to Pollution Victims (CLAPV)	Beijing	2
GONGO	China Environmental Protection Foundation	Beijing	1
Grassroots	Green Earth Volunteers	Beijing	1
GONGO	Shanxi Ecological Environment Protection Law Association	Shanxi	1
Grassroots	Shaoxing Zhaolu Environmental Protection Center	Zhejiang	1
Grassroots	Tianjin Binhai Environmental Advisory Service Center	Tianjin	1
Grassroots	Chengdu Qingpu Social Work Service Center	Sichuan	1
Grassroots	Green Jiangxi Environmental Exchange Center	Jiangxi	1
Grassroots	Handan Winter Swimming Association	Hebei	1
Grassroots	Loudi Environmental Protection Volunteers Association	Hunan	1
Grassroots	Nature University	Beijing	1

All cases, except for one (P16), were filed in a different province from where the NGO is located, showing NGOs' preference towards cross-province litigation strategy. It helps to get around the deeply rooted local protectionism and also protects NGOs from potential retaliation by local interest groups. However, this does not necessarily prevent NGOs and volunteers from potential

conflicts with the companies. As shared by an NGO volunteer and a supportive lawyer, the judges tend to be reluctant to conduct site visits, especially when the location is remote (Interview 9, lawyer; Interview 14, NGO volunteer). There are some occasions when the judge agreed to conduct a site visit, but these would be arranged by the defendant, for example to showcase their latest environmental protection equipment (e.g., case M6, M7). In order to uncover the polluting activities, NGO staff and volunteers sometimes needed to conduct site visits independently to collect evidence beyond company narratives. On one of such occasions (case M12), an environmental volunteer encountered violent attacks when conducting site visit and independent investigation of water pollution at a coal mine.

The PILs filed by GONGOs tend to be more symbolic, in the sense that they are deemed to have a high chance to win in court, since they align with and manifest the priorities of government policy orientation. For example, All-China Environment Federation (ACEF) filed a number of cases against coking plants on grounds of air pollution (case K1, K2) and a number of cases regarding falsified carbon emission data (case P16 as one example of cases based on the same claim against five different defendants). These claims were primarily based on the administrative penalty information disclosed by the government. Some also perceive GONGOs as an extended arm of the government to alert and exert punishments upon polluting companies, which exemplifies "embedded activism" (Ho, 2007; Ho & Edmonds, 2007, 2011) .

While NGOs have become eligible to file PILs since 2015, procuratorates have also been encouraged to take up PILs against both irresponsible corporates and administrative authorities. Compared to NGOs, procuratorates have a natural advantage when filing PILs. On the other hand, in face of large number of cases that could be filed, procuratorates also need the support of NGOs. When new cases are prepared to be filed, procuratorates are mandated to publish the intention to file a PIL and elicit responses from NGOs that are willing to file the litigation as the main plaintiff. In recent years, NGOs have started exploring such a path, as seen in case P7 and M17.

3.4.4 Profile of PIL defendants

More than two thirds (45 cases) of the PIL cases involve defendants that are SOEs or subsidiaries of SOEs, while the other 19 cases involve private companies as defendants. The scale of companies also varies. For example, coal mining companies' output ranges from 0.03 Mt/year to

20Mt/year, while CFPPs' capacity ranges from 30MW to 1,000MW. *Table* 3-3 provides more details regarding the total capacity of coal-related facilities involved in the PILs categorized by industry.

Table 3-3 Production capacity of defendant companies

Industry	**Product**	**Number of cases**	**Number of cases with capacity information**	**Total annual capacity**
Coal mining	Coal	18	18	126.03 Mt
Coal-fired power plant	Electricity, Heat	20	11	6320 MW
Coking	Coke	17	17	21.66 Mt
Coal chemical	Urea, methanol, aniline, petrol and diesel, etc	9	-	-

It is regulated that only procuratorates are eligible to file administrative PILs with government bodies as defendant. However, there are still three cases where GONGO China Biodiversity Conservation and Green Development Foundation (CBCGDF) attempted to sue the local government authorities, including the environmental protection bureau and the natural resource bureau, as third-party defendant in addition to the company defendant. For example, in case M10, CBCGDF argued that the local government had failed to provide disclosure of the requested information regarding the defendant's pollution penalty history, while in case M2 and M3, CBCGDF argued that the local government had not been able to hold the company accountable despite the polluting activities.

3.4.5 Litigation outcomes

Out of the 64 cases under analysis, two cases that were filed in 2013 were rejected to be heard by the courts, 24 cases came to a final resolution, while 38 cases are pending court adjudication or are

without publicly available information regarding the court decision as of January 2024. The outcomes of the 24 cases with a court decision can be divided into three categories: withdrawal by the NGO plaintiff (4 cases), settlement (16 cases), and non-settlement adjudication (4 cases).

The majority of the concluded cases resulted in settlement between the plaintiff(s) and defendant(s), sometimes with the mediation of the court and the support of the local government, mostly the local ecology and environment bureau (formerly known as the environmental protection bureau), e.g., in case K1. This shows how environmental conflicts in China, including the PILs, are embedded in an interactive process of negotiation and mediation. With limited financial and political leverage, NGOs and lawyers tend to be willing to settle for an agreement with corporates, which sometimes compromises their claims for environmental justice and public interest. This is echoed by an NGO volunteer that has observed multiple PIL cases (Interview 14, NGO volunteer).

Ecological damage compensation and restoration liabilities

The majority of the settlements and court adjudications (17 out of 20) led to certain amount of monetary compensation paid by the defendants, including direct compensation and indirect compensation in the form of investment or commitment to invest in technology upgrade that contributes to ecological environment restoration. *Table 3-4* presents an overview of the category and amount of monetary compensation involved in the settlement or court adjudication, as well as the amount of administrative penalties issued by government authorities prior to the PIL and the monetary remedy requested by the plaintiffs.

Table 3-4 Administrative penalty, monetary remedy claims by plaintiffs, and court ruling of compensation (in CNY)

Industry	Case ID	Administrative penalty and plaintiff request		Court ruling (settlement and adjudication)		Litigation outcome (based on compensation)			
		Administrative penalty before PIL	Financial remedy requested by plaintiff	Direct compensation	Indirect compensation	No financial compensation	Ecological service damage compensation	Environmental restoration cost	Others
Coal mining	M1	200,000	Unknown	-	71,000,000			x	
	M4	900,000	20,000,000	-	28,390,000			x	
	M9	Unknown	1,000,000	30,000				x	
CFPP	P1	Unknown	15,901,440	3,036,200				x	
	P3	1,420,000	-	1,528,147				x	
	P4	2,000,000	1,722,000	100,000					x
	P5	200,000	10,000,000	100,000					x
	P8	Unknown	Amount pending verification	-	65,170,000				
	P9	3,650,000	-	-	-	x			
	P2		1,718,000,000	-	1,893,000,000			x	
	P18	1,720,000	-	150,000	-			x	
Coking	K1	250,000	61,364,239	13,138,500				x	
	K2	700,000	2,098,553	537,800			x		
	K3	5,000,000	200,000 (temporary amount, pending verification)	-	10,000,000		x	x	
	K5	1,200,000	5,000,000	-	-	x			
	K6	2,770,000	5,000,000	400,000	-				
	K8	Unknown	5,000,000	550,000	-		x		
Coal chemical	C3	5,500,000	Amount pending verification	500,000	-		x		
	C4	160,000	100,000 (temporary amount, pending verification)	10,890,000	-			x	
	C5	160,000	20,750,000	-	-	x			

The monetary compensation mainly falls into two categories, including ecological service damage compensation and environmental restoration cost. There are also exceptions. For instance, in case P4, the defendant agreed to pay a relatively small amount of compensation (CNY 100,000, equivalent to approx. USD 14,081) to the plaintiff for future monitoring of restoration activities. In another case (P5), the defendant agreed to give CNY100,000 to a designated NGO that performs environmental protection activities in the local area.

As the monetary compensation is a result of negotiation, it is in most cases much lower than the claim indicated by the defendant in the civil complaint document. As can be seen in *Table 3-4*, while repetitive administrative fines could add up to millions of CNY, they tend to be lower than the final amount of compensation that the companies have to pay as a result of the PIL. On one hand, it indicates PIL's potential role in revealing and correcting corporates' cost shifting behaviors. On the other hand, it may lead to loopholes where companies could "buy out" their responsibility for damage restoration and continue to ignore the social and environmental injustices associated with their activities.

When NGOs file the litigation, it is usually compulsory to indicate an amount of claim, while the specific number will be confirmed based on third-party evaluation after the case is heard. The verification, which tends to be costly for NGOs, forms a main barrier for many plaintiffs. Even upon third-party assessment, the defendant could still deny or cover up its polluting behavior, leaving the court to make the final call for the amount of monetary compensation that the company is liable for. One interviewee shared the feeling that the final amount could seem arbitrary and far from the plaintiffs' claim and the actual cost of the damages (Interview 14, NGO volunteer).

Another form of procedural injustice faced by NGOs occurs as the local environmental bureau can initiate the eco-environmental damage compensation negotiation procedure with the defendant company when a PIL is already filed by an NGO. The system gives precedence to the former, which puts NGOs' litigation on hold and usually ends up in a negotiated compensation amount agreed between the local environmental protection bureau and the corporate, which tends to be much lower than the NGO's claim. This is seen in multiple cases (e.g., Case M16, P5), which can undermine the grassroots efforts and the potential of the PIL to circumvent local protectionism.

Civil society participation and supervision

Compared to administrative penalty, as some interviewees (Interview 11, 12, NGO representative) indicated, "the PIL could play an important role in public participation and information transparency". In a number of cases, despite compromising on the amount of monetary compensation, NGOs managed to settle for a role in supervising and monitoring the follow-up ecological restoration progress (e.g., in case M1, P1, P4). However, there is a lack of publicly available information published either by the court or the NGOs, which makes it impossible to assess the role played by the NGOs in follow-up monitoring and supervision.

In addition, NGO plaintiffs, despite their efforts in filing the PILs, don't benefit financially from the PILs since they are not direct victims of the pollution activities, which to some extent also avoids any potential conflict of interest. While in some cases the NGOs could play a role in monitoring the restoration and recovery results, they play very limited role in monitoring the usage of the monetary compensation. *Table* 3-5 provides an overview of the destinations of defendant compensation disclosed by the courts. It can be seen that the compensation from 6 out of the 17 cases that involve some extent of monetary compensation goes to local government's fiscal account. There are also 6 cases where the destination is unknown. Since many of the repeating corporate social irresponsibility behaviors were a result of local government's protectionism, this allocation of compensation dilutes the intention of NGO plaintiffs in grassroots participation and in fostering transparency.

Table 3-5 Overview of monetary compensation destinations

Type of defendant compensation destination	**Examples**	**Number of case (n=17)**
Court account	Execution account of Gansu Province Higher People's Court	1
Joint account set up by plaintiff, defendant, and local environmental bureau	An account set up jointly by the two parties (Dayan Mining Industry Group and ACEF) and the Environmental Protection Bureau (now Ecology and Environment Bureau) of Ewenki Autonomous Banner	1
Project fund for site-specific restoration	A special fund for the geological environment governance and restoration of the Dananhu No. 2 Mine	1

Public treasury	Public treasury general account, or specific account under the public treasure, e.g., ecological environment damage compensation fund, Provincial Ecological Environment Protection Fund of Guizhou Province	6
Third party NGO	An environmental NGO in Inner Mongolia designated by defendant and plaintiff	1
Third-party foundation	Jiangxi Sihua Ecological Public Interest Foundation	1
Unknown	-	6

Divergence and synergy between PIL and other environmental justice initiatives

The filing of PIL at different stages of environmental pollution and damage could lead to different outcomes. None of the cases under analysis adopted a preventive approach, for example at the stage when a coal-related infrastructure was proposed or during the environmental impact assessment (EIA) process. This reactive PIL approach adds to the difficulty of suspending projects and associated damages. In a few cases (e.g., C5, K17), the companies were approaching or have already declared bankruptcy or were ordered to suspend their operations as part of the government's plan to downscale polluting industries. At such a stage, it is almost impossible for the defendant to make the desired compensation or restoration, which makes PIL efforts in void from the beginning.

PIL is also adopted in combination with other environmental activism tactics. For example, PIL was filed after activist intervention in case M5. In contrast to the immediate impact of artistic activist intervention, the PIL took a much longer time to even get heard by the court. As one interviewee shared, it is typical that the court intentionally delay the time of hearing the case so that the plaintiff could have time to make corrections and invest in environmental protection facilities, after which the case would be more in favor of the plaintiff company (Interview 14, NGO volunteer). The company could then argue that they have made adequate efforts to restore the damage and show selected improvements to the judge as evidence. While this could be an indirect

pathway to nudge corporates to make improvements, the lack of transparency and the lengthy process make NGOs lose their patience and confidence in filing PILs.

One major goal of impact litigation is to support NGOs' policy advocacy. This is evident in a number of cases (e.g., C1, M3, P2). NGOs mobilized different strategies alongside PILs, such as investigation report, media exposure and expert discussion seminar, to raise the awareness of policymakers on social and environmental issues relevant to public interest. For example, in case M3, an NGO representative appeared in a TV program produced by a central television (CCTV) channel to explain the pollution caused to the grassland and the communities due to coal seam fire at a coal mine in Inner Mongolia. Despite the unknown result of the associated PIL case, the local government followed up to make recovery efforts. In case P2, Friends of Nature reached a mediation agreement with the defendant, the Gansu branch of State Grid, after almost seven years of litigation. The defendant, Gansu Electric Power, committed to invest at least CNY 913 million (equivalent to approx. USD 129 million) in the construction of power grids that facilitate the renewable energy development and enhance renewable energy power generation and transmission capabilities. Moreover, the litigation led to policy changes that address the issue of solar and wind curtailment which concerns broader actors beyond the defendant of this specific case.

3.5 Discussion

3.5.1 The role of PIL in revealing corporate social irresponsibility

Since the revised Environmental Protection Law took effect in 2015, more and more PIL cases got accepted by the court in comparison to being rejected outright by the court in earlier years. However, NGOs still face significant procedural justice challenges, with their legal standing being questioned as one of the main reasons that the cases were delayed. It is typical as evidenced in the cases under analysis that it takes more than one year or even multiple years for a case to be heard, and it could take a decade for a court decision to be reached as is shown in the first grassroots PIL in China, the chromium slag pollution case in Qujing filed by Friends of Nature. The procedural injustices faced by NGO plaintiffs and the lengthy process of PILs from case filing to a final judiciary decision resonates with what Conde et al. (2023) conceptualized as "slow justice".

Instead of being simply perceived as a bottom-up intervention in environmental governance, PILs serves as bridge between the top-down administrative system and the grassroots (Ren & Liu, 2020). For example, the majority of PILs under analysis built upon the administrative penalties issued by government agencies and revealed the repeated polluting behaviors of companies. While corporate defendants have the responsibility to provide evidence of non-violation, the administrative penalties served as counter evidence for the plaintiffs to prove defendants' non-compliance behaviors. The PILs to some extent support local governments that struggle to correct corporate irresponsibility after repeated fines. For instance, one local government official in the land and resource department indicated that they were also thinking hard how to hold the company responsible, while being aware of the company's role as an SOE in tax contribution and in ensuring energy security (Interview 16, government official).

However, in cases where local government authorities and even local courts are protective towards corporate interests, such an approach can encounter bottlenecks. The court can delay the hearing of the case which makes time and space for the defendant to either make genuine improvements or cover up their irresponsibility through temporary measures, which exemplifies "slow justice".

In addition, despite the purpose to service public interest and environmental justice, the transparency of PILs is rather limited. While most of the cases could be found in the two major databases maintained by the Supreme People's Court, there are cases where the information is not shared due to sensitivity. It is also impossible for the public to follow the update during the course of the PIL, which can last as long as 10 years as shown in the chromium pollution case filed by Friends of Nature. Under such a scenario, media report and enhanced publicity of the cases could help NGOs gain more leverage in their negotiation and catalyze corporate responses (Interview 14, NGO volunteer). Some NGOs, especially grassroots NGOs, have made use of strategic media exposure during the litigation process. For example, in one case, an NGO volunteer shared (Interview 14) that the media exposure has led to some improvement of ecological recovery measures after the PIL was filed and before the pre-litigation meeting took place.

The involvement of lawyers also complicates the outcomes of PILs. For NGOs that collaborate with external lawyers, the interests between the two parties may not be necessarily aligned. In some cases where the lawyer lacks experience and patience, the agreement to settle at an earlier

stage could result in the compromise of NGO plaintiff's objectives. This is less of an issue for NGOs such as Friends of Nature that have internal lawyers.

Some NGO representatives and lawyers also indicated that their goal of pursuing PIL is not to win, or at least not solely to win, and that they are usually ready to negotiate and settle from the beginning (Interview 8). On the other hand, thinking beyond winning also allows the plaintiffs to file litigations that could have an impact beyond individual cases. For example, the few "failed" attempts of GONGO CBCGDF to reveal the irresponsibility of local government and include them as third-party plaintiffs demonstrate their ambition to follow the logic of "rightful resistance" and pursue administrative PIL. Although NGOs are not eligible to file such litigations based on current legislation, CBCGDF's entrepreneurial approach pushes the boundary of PIL beyond the specific case and towards policy and legislation reforms that could have broader socio-political impacts. It exemplifies the impact litigation approach, as is also adopted by Friends of Nature in case P2, which is considered as the first climate litigation in China. In such cases, the plaintiffs are aware of the high possibility of losing the case, but they consider it as a catalyst for policy advocacy instead of targeting the specific corporate defendant (Interview 3 and 4, NGO representatives). More importantly, they aimed for changing the socio-political configurations that tolerated and sustained corporate social irresponsibility behaviors.

3.5.2 Valuation languages lost in translation

One NGO representative shared that one aspect of the PIL is also to speak for nature that does not have a "voice" in the court, in addition to fostering public participation through the legal approach (Interview 11). However, the valuation languages adopted in the PILs under analysis have reflected the voice of nature more from a technocratic perspective such as in the language of "ecological function or service". More specifically, the valuation languages demonstrated by the PIL cases under analysis follow broad categories of the loss of ecological value or function, and the cost for recovering ecological damage, which aligns with the PIL related policies and regulations. In terms of the latter, corporate defendants can negotiate between shouldering the responsibility through own internal investment into technology upgrade or payment of ecological compensation.

The compensation level and approach varies across cases and relies on the third-party evaluation, the judge's expertise and attitude towards the defendant, as well as the power dynamics of the

negotiation among NGOs, lawyers and corporates. For example, in case C4 and C5, the outcomes faced by a GONGO and a grassroots NGO are in huge contrast, with one filed by a GONE resulting in settlement and monetary compensation (C4) and the other one filed by a grassroots NGO (C5) resulting in repeated rejection by different levels of courts and procedural injustices. Among cases at different locations with similar evidence and claims from the plaintiff, the outcomes could also be very different. This echoes earlier studies that indicated the importance of local socio-political context in understanding each court ruling outcome (Stern, 2011).

Despite the diversity of the forms of corporate social irresponsibility revealed by the PILs, the compensation from the 17 cases that involved some extent of monetary compensation solely focuses on the environmental aspect with a technocratic approach based on third-party evaluation. None of the cases mentioned any support to affected communities, nor were community members invited as witnesses. In contrast to private interest litigations, which can be filed for example when a pollution victim's private interest such as land and property is damaged, PILs usually concern the interest of an undesignated group of population in addition to the ecological impacts. As seen in case M5, the local population is unevenly affected by the ground and surface water pollution caused by coal mining activities. Local communities also reported long-term health impacts on both community members and their livestock. However, these are not reflected in the NGO plaintiff's compensation claims.

A few cases pointed to a potential pathway for the compensation of social costs, for example through assigning and paying a designated NGO that focuses on environmental protection and livelihood improvement activities in the local area (case P5). The failure to incorporate social aspects in the compensation points to the need to at least allocate part of the compensation to traceable activities that benefit the affected communities and recover the damaged public interest in reality.

Also since the PILs under analysis are all reparative than preventive, the valuation language focuses on past damage recovery. The damages that sustain longer term and are chronic, or even irrecoverable, for example water and soil contamination, as well as public health impacts, could be undervalued (Martinez-Alier, 2023). In addition, incommensurable values such as the loss of sense of place, culture and traditions (Martinez-Alier et al., 2010b; Zografos, 2023), are not mentioned in any of the PIL cases.

The PIL cases reflected how the valuation languages adopted in PILs follows a simple yet sometimes arbitrary aggregation of monetary compensation, in contrast with the plurality of valuation languages that are usually adopted in ecological distribution conflicts outside the court, as demonstrated in the previous chapter (see also Cardoso, 2018; Lele et al., 2023; Martinez-Alier, 2023). Despite the intention and outcomes of PILs to reveal corporate social irresponsibility, they have failed to recognize the potentially undervalued and unevenly distributed socio-environmental costs shifted by corporates, which are faced by poorer or marginalized communities that are not eligible to be plaintiffs in PILs. This could be due to the approach of NGOs and courts that focus on technical details and the lack of participation from local communities to interpret the social costs in public interest beyond technical and monetary ecological damage compensation. This finding corresponds to the observation of Wang and Lo (2022) regarding the importance of collective interest in the Chinese understanding of justice, which sometimes conceals the unevenly distributed impacts and reproduces the marginalization that enabled cost shifting.

3.5.3 Ecological compensation: whose ecology and whose compensation?

Stern and O'Brien (2012) suggested that the Chinese state "speaks with many voices and its bottom line is often unclear". Such mixed signals have implications for NGOs' participation in the PIL field. On one hand, NGOs' participation in the PIL scheme is legally permitted, which opens up a political opportunity window for eligible NGOs to sue polluters. On the other hand, the parallel eco-environmental compensation scheme and the competition from procuratorates to file PILs sometimes leave NGOs' efforts in vain. Although the situation may differ by location, with several cases also showcasing collaboration between NGO and environmental bureau or procuratorate, it still poses the question of who has the power to sue the polluter and who has the power to determine the compensation value, as well as where should the compensation go?

Answering these questions is not within the scope of this study, but they demonstrate the political struggles behind the valuation contests. When encountered with environmental bureau's intervention, such as through direct ecological compensation negotiation with the defendant company without the participation of the NGO plaintiff, the PIL sometimes became a tool of "performative governance" (Ding, 2020), which is defined as "the theatrical deployment of language, symbols, and gestures to foster an impression of good governance among citizens", a term developed by Ding (2020) based on empirical observations at a local environmental

protection bureau in China. As seen in the development of PIL in China, on one hand, the possibility for NGOs to file PILs showcases the open-up of space for civil society to engage in monitoring and litigating irresponsible polluters. On the other hand, as the PILs became entangled in the local political context, NGOs' role can be significantly constrained, which undermines the effectiveness of PILs, especially those filed by grassroots NGOs. As one interviewee commented, such mediation negotiation between the company and the environmental bureau, which sometimes also took place in court, seems more like a "private interest litigation between the company and the state" (Interview18, lawyer).

3.6 Case studies

This section includes three case studies of coal related PILs filed by grassroots NGOs. The case studies are informed by secondary sources, in-person and remote interviews with NGOs, lawyers, and other stakeholders involved in the PIL process, as well as participant observation at court hearings. Table 3-6 presents an overview of the three cases, which feature different types of plaintiffs and defendant companies across different sectors of the coal commodity chain.

Table 3-6 Overview of PIL case studies in section 3.6

Sub-section	Province	Sector	Type of plaintiff	Type of defendant company	PIL filing year
3.6.1	Hebei	Coking	Grassroots NGO	Private	2023
3.6.2	Guizhou	Coal mining	Grassroots NGO, with the local procuratorate as the supporting organization	State-owned	2023
3.6.3	Gansu	Coal-fired power plant/Electricity transmission	Grassroots NGO	State-owned	2016

3.6.1 Dead fish and foul air: PIL against a retired coking plant

As mentioned briefly in section 1.4.4, WeChat (the equivalent of Whatsapp in China) group is one of the most important ways that organizations manage their work and communicate in China these days. Due to my research interest in coal-related public interest litigations, I am part of more than 10 PIL related WeChat groups, with some of them focusing on specific environmental PIL cases,

while others on general discussion and information sharing. These groups break the digital divide, as they become accessible to local or other interested people, with expert or lay knowledge, that have something to say. They can be created in response to an emergency accident or breaking news, or when some volunteer or NGO partner found it reasonable to file a PIL based on companies' repeated administrative penalty record as disclosed by the government. The following case study is a combination of both.

Sometimes I reached out to NGOs that work on PIL and expressed my interest in specific cases, which led to joining the WeChat group working on the same case of my interest. In other cases, I was invited as an NGO colleague knows that I would be interested and may also share knowledge with them from my research on broader PILs. This was how it started in this case. Here I combine the case study with my observation as part of the WeChat group, to show how procedural justice and ecological value is negotiated in a PIL, and by whom.

In late February 2023, I was invited to a WeChat group named "X River - Y coking company with 27 times of environmental violations" (with real river and company names hidden for data privacy protection). The group had 15 members at the time that I joined and expanded as the case evolved, with 23 members as of March 2024. These group members include NGO staff, lawyer, professor in law school, volunteer, local NGO in the province where the case is located, and experienced environmentalists from other areas that are familiar with similar issues.

Upon joining the group, I saw group member L (a lawyer that serves as an external legal advisor for the plaintiff NGO) shared several links related to the case. These include the announcement of the Ministry of Ecology and Environment regarding company X's repeated air pollution violations, the local farmer's complaint claiming the loss of 1.5 million kilos of farmed fish (see *Figure 3-4* for the farmer's own photo of the dead fish) due to the coking company's discharge of wastewater, as well as a journalist's report about the local farmer's complaint, and some official administrative penalty record of the company.



Figure 3-4 Dead fish potentially due to a coking plant's pollution in T city. Photo credit: Farmed fish owner (June 2018), quoted by Shen (2022).

The lawyer responsible for the litigation, W, responded swiftly and sent the documents that needed the NGO plaintiff's official stamp before being sent to the court. This list of documents includes proof of the NGO's legal status, the NGO's annual report, and the proof of no administrative violations in the past 5 years, as well as other related documents to prove the NGO's eligibility to be a PIL plaintiff. According to L, there is a list of 15 items suggested to be submitted, with one of them being the litigation indictment, while a least 5-10 of them are mandatory and related to the NGO's administrative status such as proof of no legal violation.

In a move to file the litigation as soon as possible, there was hardly any time or capacity to provide an estimate of the amount of ecological compensation. According to the Notice by the Supreme People's Court, as shared by L in the group, it is legally accepted that the plaintiff doesn't include a specific monetary number related to the ecological recovery or damage, and can still request the defendant to shoulder the liability of ecological recovery and the damage to environmental service functions. But courts usually ask for an estimated amount, mainly for calculating the litigation fee (for example, the litigation fee is around 100 CNY when the overall amount is under 10,000 CNY). Lawyer W responded, half-jokingly, that he would put 1 CNY if it appears to be mandatory. As

such, this “one dollar” (or more precisely “one Chinese yuan”, equivalent to 0.14 USD) PIL started, which later unexpectedly evolved into a mediation over more than one million CNY.

The litigation was filed online on 29 March 2023, pending the review feedback of the local Intermediary Court. The case acceptance division (立案庭), which handles case filing at the beginning of the PIL pipeline, can accept or reject the case at this initial step. The indictment prepared by the lawyer is in a standard format that includes six major requests in addition to presenting the evidence of the defendant company’s environmental violations. The requests towards the defendant company, similar to most of the cases analyzed in this chapter, include stopping the non-compliance activities and violations, eliminating the danger and risks caused by pollution, restoration of the environment, compensation for the losses of environmental services, apologizing in the media for the environmental damages, as well as bearing reasonable costs associated with the litigation, including the third-party assessment fees and attorney fees.

It did not take long for the first hurdle of PIL to appear, which is the well-known difficulty for PIL cases to be accepted by the court (known as “立案难” in Chinese). Compared to before 2015, when the revised Environmental Protection Law provided the legal standing for NGOs to file environmental PILs, it became much easier for NGOs to file PILs although various reasons could still lead to the PIL case to be rejected or wait for a long time until acceptance. In this case, the judge from the Environmental Resources Tribunal of the local court called the lawyer the next day, with three main messages. On one hand, the judge claimed that it was the first time that he handles a PIL case, and PIL was also rare at the local court, thus they have limited knowledge about it. On the other hand, he has checked with the defendant company that it had stopped its operations and restructured, thus not causing pollution anymore. Thirdly, the defendant does not have any ability to pay, thus the NGO could probably use its capacity and resources to leave aside this case and engage in other more meaningful areas. According to the lawyer that shared this story, the judge was suggesting him to withdraw (“撤回” in Chinese) the litigation, or else the judge would turn it down (“驳回” in Chinese) from his end.

But what about the recovery of the polluted environment? And the compensation for the historical pollution that the company was responsible for? “With restructuring, they could still improve conservation and environmental protection efforts to recover the damage. Our goal is not to ask for a huge amount of compensation, but to make them more environmentally friendly, more legally

compliant and reduce their energy consumption and emissions", suggested legal advisor L in the group. Lawyer W agreed and committed to continuing the communication with the judge. "If the judge turns it down, I will mail it in and request for the reasoning report for not being accepted."

In the meantime, lawyer W confirmed from publicly available data published by the local government that the coking plant indeed stopped its operations, as part of the provincial government's policy to reduce the overall coking capacity and replace retired coking plants. The defendant of this case, the coking plant, had a total of 1.1 million tonnes of annual coke production capacity, which was thus retired by the end of 2022.

Then a collaboration meeting among the WeChat group members was held online. Upon finding out that the company does not have any pollutant discharge permit ("排污证" in Chinese), which is usually disclosed by the local environmental protection bureau on their official website, NGO representative X suggested to file the complaint via the so-called "Mayor's hotline"("市长热线"), which is known as the "12345" hotline, for reporting complaints and disputes to the local government, and the "12369" hotline, which is specifically for reporting environmental complaints. Within one hour, the colleague that used the 12345 hotline received a response by phone call, indicating that the pollutant discharge permit could not be found in the online system, because the permit had expired, plus the company had stopped operations. This is a standard procedure that NGOs pursue during the PIL filing process, to solicit public information disclosure by government agencies, especially at the local government level.

Half a month later, lawyer W shared that the online filing of the litigation did not pass the court's review assessment after all. As a result, W went for offline case filing and sent the required documents to the court by mail. "If not accepted again, I would request for the reasoning document to explain the rejection of the case", wrote W. Thanks to the perseverance of lawyer W, the case was finally accepted by the court on 24 April 2023 after repeated communication with the case acceptance division and the judge of the Environmental Resource Tribunal.

Upon planning for the court hearing, lawyer W commented, "we would probably be asked to withdraw again". In the meantime, L shared the news which mentioned that the farmer that sued the coking company earlier in a private interest litigation, was sued for violating the company's reputation. These are private interest litigations that have been handled by the same court.

On 10 August 2023, two weeks before the court hearing, it was the time when the NGO started preparing some materials for their public communication through social media, such as publishing articles in their official WeChat public account (微信公众号). The communication colleague O asked the lawyer about the case and related documents. One question that O asked was how lawyer W managed to persuade the judge and lead to the case being successfully accepted. Lawyer W shared, "I did not persuade him. I just insisted on filing it. In the end he had to accept it. Upon filing the litigation again by mail, after being rejected in the online system, the court received the materials ("签收") and could not reject it without a proper reason. As such, an article was prepared by O to share the news about the court hearing with the general public.

The first court hearing took place in late August 2023. I attended the hearing and witnessed how the lawyer of the defendant company sat alone on the defendant seat and denied all of the plaintiff's claims on the company's environmental impact, despite the repeated administrative penalty record on air and water pollution. In the meantime outside the court, more information about the farmer that sued the coking plant could be found and contact was established by the NGO to seek his support for sharing more evidence and potentially attending a follow-up court hearing as a witness. After a brief site visit which confirmed that the coking plant was indeed closed for good (sitting in the taxi for a 2-hour return trip), lawyer W came to the municipality to request for the original EIA document from the administrative approval bureau. In the meantime, on the same day, O prepared an article to be published in their WeChat official account, about the PIL case. It was titled "NGO sued Y company" with a highlight line "Historical debt also needs to be paid back". Lawyer W suggested deleting one line which quoted directly what the farmer claimed about his economic loss (more than 10 million Chinese yuan) due to the death of the fish. With much rigor and precaution, W commented "You are NGOs after all, and should be more objective. We can't judge how much they lost and whether it was exaggerated".

The next major hurdle is the evaluation (鉴定) of the ecological damage and the recovery cost. To start with, it was difficult to find an eligible expert institute recognized by the defendant and the court. In the end, this task was commissioned to the court, to look for the appropriate organization, which ended up being a professor from University P, a partner university with which the court had just established a collaboration base to enhance the role of judiciary efforts in environmental protection. Then the question comes to, what to evaluate and how? The challenge lies in the

availability of data. Lawyer W requested for online environmental monitoring data of the company, from 1 Jan 2020 to 31 Dec 2021, but this was more difficult than expected, as the local ecology and environment bureau indicated that since the plant had closed, related pollutant emissions data was also deleted from their system. Without this data, the expert could not issue any third-party opinion.

One last hurdle is when it comes to the stage of mediation. In February 2024, the judge shared with the lawyer W on the phone that the company agreed to have a mediation discussion, mostly regarding the amount that the defendant should be liable for. Lawyer W shared that the judge had called him to share that this would be the first case after the launch of the collaboration between the court and University P, which was the third-party organization to provide technical support for the evaluation recommended by the court. As a result, the judge was keen on supporting the plaintiff to make it a first, and exemplary case that shows how judiciary efforts could contribute to the environment and ecology. While the negotiation was not easy because the company kept explaining that it was about to go bankrupt, a preliminary agreement was finally reached, with the compensation value assessed at around 1.2 million Chinese yuan, plus lawyer fees 50,000 yuan, and travel expenses 10,000 yuan. The defendant insisted, however, to send this compensation to the local environmental bureau and not through other channels suggested by the NGO, such as donating to an organization specialized in environmental protection in the area. This raises the issue of the monitoring of how the compensation is used, which is probably not possible when it goes to the environmental bureau, a concern shared by lawyer L in the group in response to this preliminary result.

As lawyer W commented in the group chat, about the implied message by the court, “It’s ok to punish the defendant a bit, but not too much. It’s not good for the economy.” This case exemplifies what Stern (2013, pp.138) termed as “rough justice” in the typology of judicial types in a one-party state, as well as what Ding (2021) coined as “performative governance”. The outcomes of PILs and the compensation amounts are a result of balancing between “a near overwhelming state imperative for economic growth with concerns about vulnerable groups, pollution, and social stability”, which primarily rely on the judge’s decision making and “informal problem solving to maintain local harmony”. From almost rejecting the restorative “one dollar” case, to working together with the lawyer and being prepared to celebrate its “success”, this case turned into a “million dollar” case. The judge to some extent sided with the plaintiff in the mediation and helped

to more than double the mediation amount compared to what the company was willing to pay at the beginning. However, the voice of the farmer(s) and other residents, as well as the (absent) technical evidence of pollution costs from expert evaluation, all became a silent backdrop of this case, in contrast to the dramatic increase of the compensation in monetary value.

3.6.2 Mountain of coal gangue: PIL against a coal mine

Procuratorates (public prosecutors) have played an increasing role in public interest litigations since the launch of the pilot procuratorate PIL schemes in July 2015 and especially since the amendment of the Civil Procedures Law and the Administrative Litigation Law in 2017. This amendment gave procuratorates the legal standing to file both civil and administrative PILs, while NGOs can only file civic PILs. It has been argued that the different nature of procuratorate and NGO, as well as their imbalanced power and rights, led to an uneven development of PILs filed by the two entities. *Table 3-7* below provides a broad overview of such phenomenon. As a result, most studies have focused on the division of work and the relative shrinking of NGO-led PIL due to the procuratorates' increasing involvement in PILs, which sometimes even led to the conflict between the two. For example, in case M10, GONGO CBCGDF claimed that they had filed the same litigation before the procuratorate, but the local court prioritized the PIL filed by the procuratorate and did not proceed with CBCGDF's litigation, which CBCGDF considered as a form of procedural injustice. However, in this section, another case study would bring in more nuances to this competition or conflictive perspective and explore the synergy between a grassroots NGO and the local procuratorate in fostering environmental justice at a coal extraction frontier in southern China.

Table 3-7 Overview of NGO and procuratorate-led civil plaintiffs (2015-2021). Data source: Otsuka (2023).

	Year/Period	Jan 2015 - Dec 2016	July 2016 - June 2017	July 2017 - June 2018	2019	2020	2021
Type of civil PIL plaintiff	**NGO**	112	57	65	179	n.d.	299
	Procuratorate	25	71	113	312	n.d.	847

Guizhou Province is home to the largest amount of coal reserves in Southwest China. In my initial fieldwork plan, I had included Liupanshui, known as the "coal capital of Jiangnan" ("江南煤都"), which refers to areas south of the lower reaches of the Yangtze River, or the "sea of coal of

Southwest China" ("西南煤海"). This was unfortunately not realized due to the development of the Covid-19 pandemic during my fieldwork in late 2021. Instead, I was traveling with a representative of an NGO from Guizhou during my fieldwork trip along the Yellow River in 2021. Guizhou is home to the first environmental court in China, the first administrative PIL filed by NGO, and many other innovative attempts in environmental judiciary, which this local NGO had contributed to. The daily contact with this organization representative for over two months, including the observation of the occasional interaction on the phone between the NGO, the defendant of a PIL filed by them, and the court, as well as the stories behind the scenes regarding PILs, was very helpful for my overall understanding of the context of PIL and the local situation in Guizhou. However, this NGO does not specialize in or have any experience on PILs in the coal sector, and their approach for PIL, despite being innovative and effective, would be out of scope for this thesis but still relevant for future research on PIL.

An unexpected opportunity arose in September 2023 for me to visit the neighbor city of Liupanshui, namely Bijie (see *Figure 3-5* for the location of Bijie), also the second largest coal producing region in Guizhou, where a public interest litigation against a coal mining company was under incubation. The grassroots NGO (different from the one mentioned in the previous paragraph) representative Y came across the local procuratorate's pre-litigation public announcement of a potential PIL against the coal mining company that was involved in illegal land use to deposit coal gangues. Knowing my interest in coal PIL cases, Y invited me to travel to Bijie to visit the procuratorate officer together and conduct a site visit at the pollution site.



Figure 3-5 Location of Bijie City in Guizhou Province and China. Figure source: Jin (2019).

It is mandated by the Supreme People's Procuratorate that the procuratorates are obliged to publish pre-litigation announcement for planned civil PILs in People's Court Announcement website, which need to be publicly accessible for 30 days (SPP 2019). This could lead to two scenarios. When no eligible NGO or government agency decided to file the same litigation, or the eligible entities choose to not litigate, the procuratorate can proceed with the civil PIL. On the occasion that any qualified NGO or government agency decides to file the same litigation, the procuratorate can join the litigation as a supporting party. Against this background, the pre-litigation announcements could be a valuable source for NGOs to look for potential PIL opportunities in the industries or regions related to their work. However, there is not much data or analysis on to what extent procuratorate pre-litigation announcement has led to PILs filed by NGOs. Among the 64 PIL cases analyzed in this chapter, only one case, P7, shows evidence of the local procuratorate joining the PIL as a supporting organization, which ended up being withdrawn after the defendant provided the evidence of improvement. The case study in this section may shed light on the missing opportunity for NGO-led PILs to collaborate with procuratorates.

Along with the NGO representative Y and an experienced environmentalist volunteer B that has partnered with the NGO for pollution investigation, I visited the local procuratorate officer L (Interview 15) in Bijie in September 2023. The prior communication with Y and the discussion with L presented some key aspects of the case. As an overview, coal mine H is an underground coal mine owned by a state-owned enterprise (SOE) and has an annual capacity of 0.9 million

tonnes, to be doubled by 2024. It had received a penalty notification issued by the local bureau of land and resources regarding illegal occupation of agricultural land and forest land in May 2023, with a penalty of more than 7 million CNY (approx. 1 million USD), in addition to the requirement to return the illegally occupied land and conducting land reclamation in the coal gangue dumping area. The illegally occupied land amounts to two hectares, including more than 1.3 hectare of agricultural land and more than 0.7 hectare of bush and forest land. This notification was shared by the procuratorate as a supporting material for the PIL.

According to procuratorate officer L, it is easy for them to file PIL cases, as long as there is the potential for damaging public interest, which contrasts NGOs' difficulty in getting the cases accepted by the court as demonstrated in the case study in the previous section. In this case, the occupied area is located in a provincial nature reserve, a national forest park, as well as a 5A scenic area, which is the highest rating category for important tourist attractions in China. The nature reserve has an area of over 8000 hectares, while the core area covers around 18% of the whole area. Although the illegal coal gangue dumping site is not in the core area of the nature reserve, which is subject to much more strict protection rules, the pollution behavior and associated negative impact was very severe. The brief written decision of case filing published in July 2023 started with "We have found potential illegal land use by Coal Mine H due to occupation of agricultural land, which damages the public interest of the society." This is followed by quoting the corresponding items in law and regulations that justify the decision to investigate the potential violation of the company. However, the procuratorate had not conducted site investigation to confirm the type of land occupied by the coal mine gangue dumping site. They were also waiting for the local environmental protection bureau to conduct the sample soil test. L did not explicitly complain about the environmental protection bureau, but he hinted on how this process of working with them was not very efficient and asked Y about their experience and potential interest in soil testing in preparation for the PIL.

As the potential defendant is an SOE, L also confirmed that it can be difficult for the administrative agencies (including environmental protection bureaus) to act upon the companies' illegal or pollution activities due to their status and function such as ensuring energy security. However, the administrative procedures such as penalties are easier to implement, in comparison to procuratorate-led PILs that would have more complicated claims such as restoration and compensation, which is even less beneficial for companies.

For both the local procuratorate officer and the NGO, it was the first time to explore this kind of collaboration in terms of an NGO-led PIL built upon the procuratorate's pre-litigation announcement. Y suggested that maybe this could be an opportunity for exploring an exemplary case of activating public participation and NGO-procuratorate collaboration, as well as coal gangue reuse potentials that may benefit the companies. This seems an appealing proposal to L, who agreed to support when needed if the NGO decides to proceed with the PIL. Later Y explained to me that she was using the languages of interest to the procuratorate officer, such as exemplary case and waste reuse, which would lend more credibility to the NGO's involvement.

Due to busy work schedule, L could not join us in the trip to the coal mining area. According to L, the Intermediate People's Procuratorate of Bijie filed more than 100 PILs (including civil and administrative ones) as the plaintiff in the past year. With only two procuratorate officers in their department and the other colleagues being more senior, the major workload has been on him. The situation could be different by region, but this may contrast what is discussed in the literature on the stronger capacity of procuratorates to file PIL in comparison to NGOs. Maybe the number of PILs filed by procuratorates is higher, but their capacity could still be limited. L shared the contact of the director at the local branch of the procuratorate (检察室) before we bid farewell. As the area does not have the administrative status as a county (县), there is no official procuratorate (检察院), but it functions similarly. Upon arriving at the branch office, we were greeted by officer Z, who was in a rush for his next meeting and instead asked driver D to take us to the coal gangue dumping site. "The site is relatively remote, and the driver may be even more familiar with the site than me", Z said.

Driver D is a local from the neighboring county. He used to do fruit wholesale business in the city, but later decided to move closer to home and landed this job. Guizhou, including Bijie, is known for its mountainous areas. If not for D, we would have got lost on this first site visit amidst the winding roads deep in the mountain. It is indeed in a scenic area though, as we passed through forests and mountains. As such, this was a unique experience for me to do fieldwork sitting in a procuratorate car (see *Figure 3-6*).



Figure 3-6 A photo taken upon arrival at the coal gangue dumping site. Photo credit: Bowen Gu.

It was a rather shocking moment upon arrival at the coal gangue dumping site. In contrast to the scenic view earlier on the way, what lied in front of us was literally a mountain of coal gangue. Although covered with a thin layer of soil on top, the black traces of coal gangue are still visible (see *Figure 3-7*). Located in an area famous for its rainy weather, signs of soil erosion could already be seen from the gullies formed after rain.



Figure 3-7 A photo taken at the coal gangue dumping site, in contrast to the nearby mountains. Photo credit: Bowen Gu.

It was unclear how such a gigantic gangue site was brought to public light at the beginning that led to this PIL initiative. Procuratorate officer L in the Bijie city suggested that it might be related to the environmental awareness of the tea farmers nearby, as there are tea fields next to the coal gangue area. On the other hand, Driver D suggested that maybe it was the administrative department such as the land and resources bureau that discovered the land use change through using drones. In addition, upon meeting with local villagers in the following days, we learnt that the tea plantation is owned by a private company not from the local area and operated through contracting local villagers, thus the company management, without much presence in the area, would likely also not know or complain about the neighboring coal gangues.

What about the villagers according to procuratorate officer L? Were they worried about the environment? It seemed that most villagers we met knew about the coal gangue dump, which had existed for more than 5 years, and did not complain explicitly about it. But L also shared that he discovered this case accidently as he was investigating another case in the area. It takes three hours to reach this remote site from the Bijie city where L works, thus it could be possible that L was not familiar with the village level politics. The acquiescence of the villagers may also have to do with the fact that the land where the coal dump is located is considered part of the collective land owned by the village and the village may receive financial benefits through renting it to the coal mine. Moreover, the regulations prior to 2021 did not forbid such activities, on the premise that the coal mine would later return the land to the village after conducting land reclamation.

While visiting the local area, we also met with officer H from the land and resources bureau, the issuer of the penalty to the company, who raised several challenges in implementing this case. On the one hand, state-owned coal mines are under great pressure to supply coal for power generation and have been operating at a loss for many years. This pressure further increased since 2021 when the government decided to prioritize coal production for ensuring energy security and this coal mine was listed among those that are considered essential for supplying coal to power plants. The coal supplied by these essential coal mines is referred to as “guaranteed coal supply” (“保供煤”). The increased production also implies increased amount of solid waste such as coal gangues, which could account for 15-20% of coal output. On the other hand, in November 2021, the Ministry of Natural Resources issued a policy prohibiting temporary use of land to storage of solid waste by coal mines, which brought challenges to many mining companies across the country. In the past, the common practice was to find a stockyard, strip off the topsoil temporarily, and go

through temporary land use procedures. The nature of the land remained unchanged, but a reclamation plan was made after the stockpile. There was a policy gap period when the previous policies expired in November 2021. Only later did the provincial government come up with policies to support coal mines with legalizing solid waste storage sites. Besides, the transport and utilization of coal gangue is difficult and costly, considering the geographical environment and coal resource conditions in Bijie. The coal gangue dump that we saw may cost millions to transport, while the cost of reclamation will be much lower (for the company). As a result, the land and resources bureau officer considered it the most practical solution to let the coal mine meet the reclamation requirements in accordance with the regulations and then return it to the village committee.

While officer H made rational points, we were also aware that by only doing reclamation may not meet the environmental protection requirements. For example, it is not clear whether anti-seepage measures have been done (it is very likely that it has not been done properly). If anti-seepage is not done, the impact on water resources and other environmental problems will be significant, also considering Guizhou's karst geology. As such, a PIL was filed by the NGO not long after we returned from Bijie and the case was soon accepted by the Intermediate People's Court of Bijie. In January 2024, a pre-trial meeting was held, including a collective site visit to the coal gangue dumping site joined by the plaintiff, the defendant, the procuratorate representative, the judge and the lawyers. As of March 2024, the case was still pending further development.

3.6.3 Friends of Nature v. Gansu State Grid

In April 2023, the "first climate litigation" in China came to a conclusion. The plaintiff, China's first grassroots environmental NGO, Friends of Nature (FON), reached a mediation agreement with the defendant, the Gansu branch of State Grid, after almost seven years of litigation. FON was founded in 1993 as a platform for fostering public participation and action in environmental protection. As of 2023, FON has a network of more than 40,000 volunteers and 18 member groups organized by theme and location across China (FON, 2023). Over the years, FON has worked on environmental protection and conservation through various approaches including public education, research and investigation, public interest litigation (PIL), and policy advocacy. It is also one of those rare NGOs with in-house environmental lawyers, with PIL as an important pillar of its work. In August 2016, FON sued State Grid Gansu Electric Power Co, the provincial grid enterprise in Gansu, China, on the grounds that the company refused to purchase all the electricity produced from wind and solar generators (EJAtlas, 2021d). This phenomenon is also known as wind and solar curtailment, which means the reduction of output of a renewable source below what it could have otherwise produced within its geographic boundary (Zhu et al., 2018). Besides, as the amount that was not produced with renewable energy sources was substituted with coal-fired power, FON indicated that the company's behavior led to the increase of air pollution and GHG emissions, which has direct implications for climate change. This case is thus also considered the first climate change litigation case in China and included in the 2019 White Paper on China's Environmental Resource Trial published by the Supreme People's Court as an example of cases that relate to climate change response and mitigation (EJAtlas, 2021d).

FON made direct reference to Article 14 of the Renewable Energy Law 2005/2009 (related to mandatory connection and full purchase guarantee) to reiterate that grid companies are obliged to sign purchase contracts with renewable electricity generators and purchase their electricity in the full amount. The main claims of the plaintiff FON included: (1) The defendant shall purchase the electricity generated by wind and solar generators within its coverage in the full amount to cease environmental damage caused by electricity generation from coal-fired plants; (2) The defendant shall pay for the environmental damages caused by electricity generation through coal instead of wind and solar between 1 January 2015 and 30 June 2016, which is at least CNY 1.718 billion (~USD 0.24 billion) according to preliminary calculation of environmental loss compensation; (3)

The defendant shall issue an apology to the public in national and provincial media; (4) The defendant shall bear all litigation costs and attorney fees (Zhang, 2019).

The litigation went through a long and bumpy process. Almost two years after the case had been filed by FON, the Lanzhou Intermediate Court refused the claim of FON in August 2018, on the grounds that "State Grid Gansu Electric Power, as a power grid company that purchases, sells and deploys power supply, is not a power generation company" (EJAtlas, 2021d). According to the court, the grid company did not directly contribute to environmental pollution or ecological damage through its own activities. As a result, FON appealed to the Gansu Higher People's Court, which overturned the decision of the Lanzhou Intermediate People's Court and ordered the case to be handled by the Gansu Kuangqu People's Court due to the court's experience in environmental resource issues. According to the mediation result, the case led to the public commitment of Gansu Electric Power to invest at least CNY 913 million (~USD 129 million) in the construction of power grids that facilitate the renewable energy development and enhance renewable energy power generation and transmission capabilities.

In many other countries, litigation against coal mining or coal-fired power corporations is seen as a common tactic in anti-coal movements and climate related litigation. In this case, instead of directing its litigation towards the coal-fired power producer, FON opted for an indirect path, suing the power grid company, which is part of the long value chain involved in coal-fired power generation, transmission and distribution. However, this innovative approach also bears risks. As explained by the director of FON Liu Jinmei, which was quoted by Lin (2023) in an article in *China Dialogue*, "In China, environmental public interest lawsuits still start with the concept of a tort. There needs to be harm or a significant risk of harm. That doesn't work for climate cases".

Beyond the litigation, another NGO China Biodiversity Conservation and Green Development Foundation (CBCGDF) intervened through the information disclosure approach. A CBCGDF representative sent a letter in August 2016 to State Grid, to address the issues of their local branches' involvement with wind and solar curtailment. In September 2016, CBCGDF received a response from State Grid, which gave the slowdown of the demand for electricity, the lack of capacity to adjust the peak demand in certain regions and the lack of inter-provincial transmission pipelines as the main reasons for failing to guarantee full purchase of renewable energy power.

From the perspective of the nature of the plaintiff and defendant, this case of public interest litigation corresponds to the pillar of "holding fossil fuel corporations accountable for the central role they play in contributing to global warming" in the definition of climate justice coined by CorpWatch back in 1999 (Bruno et al., 1999, p. 5). However, in contrast to many litigation cases outside of China that focus on stopping fossil fuel projects, one interviewee from the NGO indicated that the primary goal of this public interest litigation is not to target the corporation, but to "enhance broader transition and policy advocacy on the issue of renewable curtailment and climate change" (Interview 3, NGO representative). The attorney representing FON pointed out that one of the objectives of the litigation is to send a message to the government through the grid companies, that there's need for better guarantees for the full purchase of renewable energy power generation (EJAtlas, 2021d). Another NGO representative said, "This (wind and solar curtailment) is a prominent issue in the industry. However, this is not addressed adequately due to various reasons. It is not a matter of technology, but a game of interests. In the end, it is a matter of breaking the (power) imbalance and revealing the issue to the public" (Interview 3, NGO representative).

The long time-span of this litigation reveals some challenges in pursuing climate justice in China's context. This includes the imbalance in terms of legal expertise and human resources between the NGOs and the corporations, the lack of environmental expertise of the court, and the absence of institutional support. These are also representative of bottlenecks for grassroots participation in the broader climate governance system in China. The interviews with civil society representatives revealed that the lack of climate legislation is one of the barriers for civil society organizations to file climate litigation (Interview 3 and 4, NGO representatives). Another factor hindering climate justice activism in China that has been highlighted in the existing literature is the lack of linkage between local social grievances and climate change (Harris et al., 2013; Wu, 2019). These also explain the rationale behind FON's strategy of filing PIL not primarily to hold the corporates accountable, but to promote broader policy advocacy.

This first climate litigation case opened new channels for dialogue with corporations and government bodies and demonstrated civil society's willingness to participate in climate governance. On the other hand, it also echoes what Conde et al. (2023) termed as "slow justice". Environmental and climate justice is not only expensive in material terms, but also in terms of time and patience.

3.7 Conclusion

The 64 coal related public interest litigation cases make visible corporates' various forms of cost shifting and the corresponding consequences imposed unevenly on the environment and communities. NGOs that file PILs attempt to correct the cost shifting behavior of companies and hold them responsible through paying for the ecological damages that they have led to and shouldering the costs for ecological recovery. The value of cost shifting, as a result, becomes a result of continuous negotiation and power struggles entangled in the interaction among the plaintiff(s), the defendant(s), lawyers, the court and local government authorities.

Environmental pollution and various forms of corporate social irresponsibility is not only a technical problem, but also embedded in the socio-political context where corporate cost shifting takes place. The PIL system provides NGOs with a legal and political opportunity to rightfully resist corporates' cost shifting behaviors. However, the major outcomes of PILs are restricted to a singular form of valuation language, i.e. the monetary compensation that the defendants need to pay.

PILs, like many other types of environmental litigations, could contribute to environmental justice when applied in combination with other environmental activism tactics. The early attempts of NGOs to file litigations on grounds of climate related impacts raise the hope for holding corporates accountable not only for local socio-environmental impacts, but also broader and more invisible impacts. However, despite the efforts and partial success in circumventing local protectionism that tolerated corporates' polluting behaviors, NGOs still face power imbalances in negotiation and mediation. The reduction of environmental injustices to a single number of monetary compensation may to some extent empower companies to be able to "buy out" their liabilities, compromise NGOs' environmental justice claims, and conceal the incommensurability of values as well as the plurality of valuation languages that would otherwise be reflected in ecological distribution conflicts outside the courtroom. This calls for PILs that could accommodate plural forms of valuation languages in addition to third-party technical evaluation and empower local communities to play more active roles in the PIL process.

Appendix 3-A List of PIL cases

Case ID	Industry	Defendant	Plaintiff	Province	Year	Main reason of litigation
M1	Coal mining	Shenhua Guoneng Hami Coal Power Co., Ltd.	CBCGDF, Chongqing Liangjiang Voluntary Service Center	Xinjiang	2016	Illegal mining, Water pollution, Air pollution
M2	Coal mining	Qinghai Zhufeng Hongyuan Trading Co., Ltd., Qingha Natural Resources Department	CBCGDF	Qinghai	2017	Illegal mining
M3	Coal mining	Anhui Wanwei Group Co., Ltd., Wanwei Mining Siziwang Co., Ltd., Siziwang Banner Qianlei Mining Co., Ltd., Siziwang Banner People's Government, Siziwang Banner Environmental Protection Bureau	CBCGDF	Inner Mongolia	2018	Air pollution (caused by coal seam fire), Illegal mining
M4	Coal mining	Yimei Group Xinyi Mining Co., Ltd.	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing	Henan	2018	Water pollution
M5	Coal mining	Inner Mongolia Huangtao Legai Coal Co., Ltd., Ordos Yihua Mining Resources Co.,Ltd.	Jinhua Green Ecology Culture Service Center	Inner Mongolia	2020	Water pollution, Soil contamination
M6	Coal mining	Zhongtian Hechuang Energy Co., Ltd. Chemical Engineering	Jinhua Green Ecology Culture Service Center	Inner Mongolia	2020	Water pollution, Air pollution, Solid waste

		Subsidiary, Zhongtian Hechuang Energy Co., Ltd. Coal Subsidiary				
M7	Coal mining	Ordos Haohua Hongqingliang Mining Co., Ltd.	Jinhua Green Ecology Culture Service Center	Inner Mongolia	2020	Air pollution, Water pollution
M8	Coal mining	Shanxi Jinmei Group Hongdong Jinsheng Rongkang Coal Industry Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Shanxi	2020	Water pollution
M9	Coal mining	Pu'an County Yixin Coal Industry Co., Ltd.	Jinhua Green Ecology Culture Service Center	Guizhou	2020	Water pollution
M10	Coal mining	Inner Mongolia Baiyinhua Mengdong Open Pit Coal Co., Ltd., Inner Mongolia Haizhou Lutian Energy Co., Ltd.	CBCGDF	Inner Mongolia	2021	Grassland destruction, Coal mine water discharge
M11	Coal mining	Inner Mongolia Baiyinhua Mengdong Open-pit Coal Industry Co., Ltd., West Ujimqin Banner Natural Resources Bureau as Third Party	CBCGDF	Inner Mongolia	2021	Grassland destruction, Coal mine water discharge
M12	Coal mining	Shanxi Xishan Jinxing Energy Co.,Ltd.	Friends of Nature	Shanxi	2021	Solid waste (coal gangue), Water pollution
M13	Coal mining	SPIC Inner Mongolia Baiyinhua Coal Power Co., Ltd., West Ujimqin Banner Natural Resources Bureau as Third Party	CBCGDF	Inner Mongolia	2022	Grassland destruction
M14	Coal mining	Yancoal Wanfu Energy Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Shandong	2022	Water pollution

M15	Coal mining	Guizhou Taichang'an Energy Group Mining Industry Co., Ltd.	Beijing Changping District Multiple Intelligence Environmental Research Institute	Guizhou	2022	Water pollution
M16	Coal mining	Shanxi Gu County Jingu Coal Industry Co., Ltd.	CBCGDF	Shanxi	2022	Water pollution
M17	Coal mining	Honglin Coal Mine of Jinpo County at Hundred Miles of Rhododendrons Scenic Area, Guizhou Lindong Mining Development Co., Ltd.	Beijing Grassland Alliance Environmental Protection Promotion Center, Chengdu Qingpu Social Work Service Center	Guizhou	2023	Solid waste (coal gangue), Soil contamination
M18	Coal mining	Sanjiaohe Coal Mine of Shanxi Fenhe Coking Coal Co., Ltd.	Jinhua Green Ecology Culture Service Center	Shanxi	2023	Air pollution, Solid waste (coal gangue)
P1	Coal-fired power plant	Dayan Mining Group	All-China Environment Federation	Inner Mongolia	2016	Air pollution
P2	Coal-fired power plant	State Grid Gansu Electric Power Company	Friends of Nature	Gansu	2016	Wind and solar curtailment
P3	Coal-fired power plant	Zhengzhou Xinli Power Co., Ltd.	Shandong Environmental Protection Foundation	Henan	2018	Air pollution
P4	Coal-fired power plant	Huaneng Lanzhou Xigu Power Co., Ltd.	Shandong Environmental Protection Foundation	Gansu	2018	Air pollution
P5	Coal-fired power	East Ujimqin Banner Guangsha Thermal	The Environmental	Inner Mongolia	2018	Air pollution

	plant	Power Co., Ltd.	Research Institute by Source Enthusiasts in Fengtai District of Beijing			
P6	Coal-fired power plant	Shanxi Xingneng Power Co., Ltd.	Jinhua Green Ecology Culture Service Center	Shanxi	2019	Air pollution
P7	Coal-fired power plant	Shanxi Hepo Power Co., Ltd.	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing, Yangquan People's Procuratorate	Shanxi	2019	Air pollution
P8	Coal-fired power plant	Shanxi Datang International Linfen Power Co., Ltd.	Jinhua Green Ecology Culture Service Center	Shanxi	2020	Air pollution
P9	Coal-fired power plant	Fengcheng Huitong Thermal Power Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Liaoning	2020	Air pollution
P10	Coal-fired power plant	Jinneng Holding Shanxi Electric Power Co., Ltd. (formerly known as Shanxi Zhangze Electric Power Co., Ltd.)	Beijing Huanyou Science and Technology Research Center	Shanxi	2020	Air pollution
P11	Coal-fired power plant	Zaozhuang Xuecheng District Hongyang Thermal Power Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Shandong	2020	Air pollution
P12	Coal-fired power	Jinzhong Anping power station	Beijing Huanyou Science and	Shanxi	2020	Air pollution

	plant		Technology Research Center			
P13	Coal-fired power plant	Datang Luoyang Thermal Power Co., Ltd.	Beijing Changping District Multiple Intelligence Environmental Research Institute	Henan	2020	Air pollution
P14	Coal-fired power plant	Zhejiang Zhuji Bafang Thermal Power Co., Ltd.	Beijing Grassland Alliance Environmental Protection Promotion Center	Zhejiang	2022	Air pollution
P15	Coal-fired power plant	Liaoning Geology and Mineral Resources Group Energy and Geology Co., Ltd., Liaoning Dongmei Test Analysis Research Institute Co., Ltd., Henan Nengxin Thermal Power Co., Ltd.	Shaoxing Zhaolu Environmental Protection Center, Green Jiangxi Environmental Exchange Center, CLAPV	Liaoning	2022	Falsifying carbon data
P16	Coal-fired power plant	China Carbon Energy Investment Technology (Beijing) Co., Ltd., Inner Mongolia Huaning Thermal Power Co., Ltd.	All-China Environment Federation	Beijing	2022	Falsifying carbon data
P17	Coal-fired power plant	Shenhua Shendong Hequ Power Plant	Beijing Huanyou Science and Technology Research Center	Shanxi	2022	Air pollution
P18	Coal-fired power plant	Xiaoyi Thermal Power Company, Xiaoyi Thermal Power Chengdong Heating Source Plant	Friends of Nature	Shanxi	2022	Air pollution

P19	Coal-fired power plant	Xingyi Shangcheng Power Generation Co., Ltd.	Beijing Grassland Alliance Environmental Protection Promotion Center	Guizhou	2023	Inadequate carbon credit purchase, Air pollution
P20	Coal-fired power plant	Hongdong County Thermal Power Co., Ltd.	Jinhua Green Ecology Culture Service Center	Shanxi	2023	Air pollution
K1	Coking	Guizhou Qiangui Tianneng Coking Co. (formerly known as Tianneng Coking Co., before November 2018)	All-China Environment Federation	Guizhou	2016	Air pollution
K2	Coking	Shanxi Antai Group, Shanxi Hong'an Coking Technology Co., Ltd.	All-China Environment Federation	Shanxi	2016	Air pollution
K3	Coking	Jingdezhen Coking Energy Co., Ltd. (formerly known as Jingdezhen Kaimenzi Ceramic Chemical Co., Ltd.)	Shandong Environmental Protection Foundation	Jiangxi	2018	Air pollution, Water pollution
K4	Coking	Hebei Xinyue Coking Co., Ltd.	Shandong Environmental Protection Foundation	Hebei	2019	Air pollution
K5	Coking	Weifang Zhenxing Coking Co., Ltd.	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing	Shandong	2019	Air pollution
K6	Coking	Fengcheng Xingao Coking Co., Ltd.	Green Earth Volunteers	Jiangxi	2019	Air pollution

K7	Coking	Shanxi Xishan Coal Gasification Co., Ltd.	Jinhua Green Ecology Culture Service Center	Shanxi	2019	Air pollution
K8	Coking	Yunnan Qujing Dexin Coal Industry Co., Ltd.	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing	Yunnan	2019	Air pollution, Water pollution
K9	Coking	Shanxi Shuguang Coal Industry Co., Ltd., Hejin Baidi Coking Plant	Jinhua Green Ecology Culture Service Center	Shanxi	2019	Air pollution, Water pollution, Solid waste (coal gangue)
K10	Coking	Hunan Coal Chemical Energy Co., Ltd.	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing	Hunnan	2019	Air pollution
K11	Coking	Shanxi Yinyan Group Loufan Dongsheng Coking Co., Ltd.	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing	Shanxi	2019	Air pollution
K12	Coking	Shaanxi Shanjiao Chemical Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Shaanxi	2022	Air pollution, Water pollution
K13	Coking	Licheng County Changfu Coal Gasification Coking Co., Ltd.	Beijing Changping District Multiple	Shanxi	2022	Air pollution, Water pollution

			Intelligence Environmental Research Institute			
K14	Coking	Ruzhou Tianrui Coal Coking Co., Ltd.	Beijing Changping District Multiple Intelligence Environmental Research Institute	Henan	2022	Water pollution, Air pollution
K15	Coking	Xuzhou Jiantao Energy Co., Ltd.	CBCGDF	Jiangsu	2022	Air pollution
K16	Coking	Shanxi Coking Group Linfen Construction and Installation Co., Ltd.	Tianjin Binhai Environmental Advisory Service Center	Shanxi	2023	Air pollution
K17	Coking	Tangshan Rongyi Coking and Gas Co., Ltd.	Beijing Grassland Alliance Environmental Protection Promotion Center	Hebei	2023	Air pollution
C1	Coal chemical	China Shenhua Coal to Liquid and Chemical Co., Ltd., Ordos Coal to Liquid Branch of China Shenhua Coal to Liquid and Chemical Co., Ltd.	Friends of Nature, Nature University, CLAPV	Inner Mongolia	2013	Water pollution
C2	Coal chemical	Tianji Coal Chemical Industry Group	The Environmental Research Institute by Source Enthusiasts in Fengtai District of Beijing,	Shanxi	2013	Water pollution

			Handan Winter Swimming Association			
C3	Coal chemical	Shanxi Tianji Lu'an Chemical Co., Ltd.	CBCGDF	Shanxi	2016	Air pollution
C4	Coal chemical	Anhui Huaihua Co., Ltd.	China Environmental Protection Foundation	Anhui	2016	Air pollution
C5	Coal chemical	Anhui Huaihua Co., Ltd.	Chongqing Liangjiang Voluntary Service Center	Anhui	2016	Air pollution
C6	Coal chemical	Datang Duolun Coal Chemical Co., Ltd.	CBCGDF, Loudi Environmental Protection Volunteers Association	Inner Mongolia	2019	Water pollution, Soil contamination, Air pollution
C7	Coal chemical	Tongmei Guangfa Chemical Industry Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Shanxi	2019	Air pollution
C8	Coal chemical	China Coal Erdos Energy & Chemical Co., Ltd.	Beijing Huanyou Science and Technology Research Center	Inner Mongolia	2020	Air pollution, Water pollution
C9	Coal chemical	Shanxi Lanhua Coal Chemical Industry Co., Ltd.	Shanxi Ecological Environment Protection Law Association	Shanxi	2022	Air pollution

Appendix 3-B List of interviewees

Interviewee ID	Type of interviewee	Format of interview	Date
1	Academia	Online meeting	Jun/21
2	Artist/NGO representative	Meeting in person	Jul/21
3	Grassroots NGO representative	Online meeting	Jul/21
4	GONGO representative	Meeting in person	Jul/21
5	Activist	Online meeting	Jul/21
6	Community member	Meeting in person	Jul/21
7	Grassroots NGO representative	Meeting in person	Aug/21
8	Lawyer	Meeting in person	Feb/23
9	Lawyer	Meeting in person	Feb/23
12	Grassroots NGO representative	Meeting in person	Feb/23
11	Grassroots NGO representative	Meeting in person	Mar/23
13	Grassroots NGO representative	Meeting in person	Mar/23
10	Lawyer	Meeting in person	Aug/23
14	Grassroots NGO volunteer	Meeting in person	Sep/23
15	Procuratorate officer	Meeting in person	Sep/23
16	Government official	Meeting in person	Sep/23
17	Community member	Meeting in person	Sep/23
18	Lawyer	WeChat group chat	Mar/24

Chapter 4. Black gold and green BRI: A grounded analysis of Chinese investment in coal-fired power plants in Indonesia

This chapter focuses on how Chinese investment in coal-fired power infrastructure in the Belt and Road Initiative is perceived and contested by the grassroots, with Indonesia as a case study country. The chapter is adapted from a sole-authored paper with the same title published in the journal *The Extractive Industries and Society*: https://doi.org/10.1016/j.exis.2024.101411

"I breathe cancer and I breathe fire

My lungs are dusty and I breathe fire

Smog on the sky...

I face my sickness and I breathe fire

My house is my fortress and I breathe fire

Fight for the better

The future's in my prayer...

I can't smell roses because I breathe fire

…"

Lyrics excerpts from "I Breathe Fire" by Oscar Lolang

"I Breathe Fire" is part of the album "Senandung Energi Bumi" (meaning "Hum of the earth energy" in Bahasa). The album comprises music pieces from Indonesian musicians that joined the Summer Festival 2.0 organized by Greenpeace in 2019. The music festival was organized near the coal-fired power plant financed and operated by a Chinese company in northern Bali.

Abstract

From the "Going Out" strategy in the 2000s to the Belt and Road Initiative (BRI) launched in 2013, China has increased its overseas investment and extended the coal value chain beyond its border. Despite China's commitment of greening the BRI and phasing out overseas coal investment, the socio-environmental impacts of the projects that are already planned, under construction, or in operation are expected to remain. This has led to resistances from local communities and civil society in BRI countries such as Indonesia, the top recipient of Chinese coal financing. Based on a systematic mapping of 25 socio-environmental conflicts over coal-fired power plants (CFPPs), this chapter presents a grounded comparative political ecology analysis of Chinese engagement in three types of CFPP projects in Indonesia. The chapter addresses the lasting environmental, health and socio-economic impacts of CFPPs that are inextricably intertwined with extractive industries, including coal and nickel. It also discusses the power relations that have shaped socio-environmental conflict dynamics. The chapter sheds light on policy recommendations for BRI governance from an environmental justice perspective. It reinforces the call for a research agenda on the BRI that considers not only the China-side perspective, but also the local socio-political dynamics, including the politics from below, that shapes the vision and frictions of a "Green Belt and Road".

Key words: Coal; Indonesia; Belt and Road Initiative; socio-environmental conflict; EJAtlas

4.1 Introduction

From the "Going out" strategy in the 2000s to the Belt and Road Initiative (BRI) launched in 2013, China has been increasing its overseas investment and extending its domestic coal value chain (primarily mining, transport, and power plant) and carbon footprint beyond its border (Gallagher, 2018; Gallagher, 2016; Gallagher & Qi, 2021). Existing studies and narratives have presented divided perceptions, or "two realities" of Chinese overseas infrastructure investment: one where the contribution to the development of the host country economy is celebrated, and the other, where local people are negatively affected by this development and contest the environmental and social impacts of these projects (Apostolopoulou & Pant, 2022). In recent years, a third reality, rising carbon emissions and pressures on climate change, especially from coal-fired power infrastructures, has also led to questions regarding China's role in host countries' energy transition (Ascensao, 2022; Gallagher, 2016; Wu et al., 2021; Zhang et al., 2017).

Against these backgrounds, there have been increasing calls for grounded, project-based approaches towards the effects of the BRI, also referred to as the "new Silk Road" (Hofman and Ho 2012; Klinger and Muldavin 2019; Oakes 2021; Oliveira et al. 2020; Sidaway et al. 2020). This includes a closer examination of the environmental and social impacts of the BRI and the local legal and political dynamics that challenge and complicate the top-down vision of building a "Green Belt and Road" (Rogelja, 2020; Tritto, 2021a). Scholars have increasingly recognized the role of host state actors and local politics in engaging with "Global China" and international capital (Lim, 2022; J. Lu, 2020). More specifically related to China's overseas energy infrastructure investment, the "pull" factors from host countries and the interplay between Chinese investors and domestic actors have been studied (Li et al., 2022; Mori, 2020). However, there is still limited analysis of grassroots contestation in relation to BRI energy infrastructure projects (Barter & Sar, 2023; Boulle, 2019; Gong, 2018; Siciliano et al., 2019), pointing to a gap in existing literature on the role of local communities and civil society organizations among different stakeholders in host states.

This chapter aims to bridge this gap by presenting insights from Indonesia, the top recipient of Chinese coal financing (Gallagher et al., 2021). Between 2000 and 2019, Indonesia received USD 9.3 billion of financing from China that supported the development of more than 25GW of coal-fired power plants (CFPPs) (Liu et al. 2022). Despite China's overseas coal finance exit

announcement in September 2021 (Ministry of Foreign Affairs of the PRC, 2021), the projects that had already been planned and under construction, especially those as part of large-scale nickel industrial parks, continue to be built and completed.

This chapter is based on a comprehensive mapping and comparative political ecology analysis of 25 cases in the Global Atlas of Environmental Justice (EJAtlas) related to CFPPs in Indonesia with Chinese involvement, including lending, contracting and equity investment. All these projects have encountered opposition to some extent by local community and/or civil society organizations, contesting their negative socio-environmental impacts. Building upon these 25 cases as well as 28 in-depth interviews with Indonesian and international stakeholders, this paper makes visible the bottom-up perceptions of Chinese overseas coal-fired infrastructure investment, the grievances, claims and repertoires of contention, and the outcomes of the conflicts.

Based on the comparative analysis, this chapter aims to address three key questions: How does the unequal distribution of socio-environmental impacts manifest in the Chinese-sponsored CFPP projects in Indonesia? To what extent and how are the unequally distributed socio-environmental impacts contested from the bottom up? How do bottom-up initiatives influence both the sustainable energy future of the host country and the "green BRI" agenda?

The contribution of this chapter is twofold. It extends the literature on coal dissent, including environmental justice movements at coal frontiers in Indonesia, which has been mostly on coal mining (Brown & Spiegel, 2017; Fünfgeld, 2016; Großmann et al., 2017). It also contributes to the evolving "Global China" debate (Blanchard, 2021; Franceschini & Loubere, 2022; Lee, 2022) and complements the predominantly quantitative studies on Chinese overseas energy investment (e.g., Gallagher 2018; Kong and Gallagher 2021; Li et al. 2022; Liu et al. 2022). By addressing the grounded, project-based approaches, this study contributes to a growing body of literature on the role of grassroots contestations in BRI projects across broader industries and geographies (Barter & Sar, 2023; Dave, 2022; Gong, 2018; Y. He & Tritto, 2022; Oliveira et al., 2020; Sternberg, 2020; Tritto & Camba, 2022).

The chapter is organized as follows. The next section provides an overview of the socio-economic and political background of Chinese investment in coal-fired power infrastructure in Indonesia. Section 4.3 describes the materials and methods. Sections 4.4 and 4.5 present the results of analysis

and discussions. Section 4.6 presents four case studies that complement the discussions. Section 4.7 offers a conclusion.

4.2 Contextualizing Chinese investment in CFPPs and coal dissent in Indonesia

4.2.1 Chinese investment in CFPPs in Indonesia and beyond

From the "Going out" strategy to the BRI, China has been increasing its overseas energy infrastructure investment over the past two decades. This is evident in Indonesia and coincides with Indonesia's domestic energy infrastructure boom (see *Figure 4-1*), including three large-scale electricity infrastructure programs predominantly based on coal-fired power (Ministry of Foreign Affairs of the PRC, 2021; Ordonez et al., 2021; PT PLN, 2021; Tritto, 2021a).

Coal has been an important source for both domestic electricity access and export in Indonesia, fueling the country's growth into the largest economy in Southeast Asia with an average of 5% annual GDP growth rate over the past decade until the Covid-19 pandemic in 2020 (World Bank, 2023). Coal still accounts for more than 60% of the country's electricity mix, with Indonesian state-owned utility company PT Perusahaan Listrik Negara (PLN) dominating the ownership of CFPPs (BP, 2021; Ohlendorf et al., 2022; Ordonez et al., 2021). Through signing Power Purchase Agreement (PPA) with PLN, private companies, including those from China, could participate in power generation, transmission, and distribution as independent power producers (IPPs). PLN publishes an Electricity General Plan (Rencana Umum Penyediaan Tenaga Listrik, or RUPTL) annually, which is Indonesia's 10-year power project development plan that includes projects to be developed by PLN and IPPs respectively. The RUPTL also provides the targeted commercial operation dates for projects planned or under development. According to the most recent 2021-2030 RUPTL, 13.8GW of CFPPs are still to be added (PT PLN, 2021).

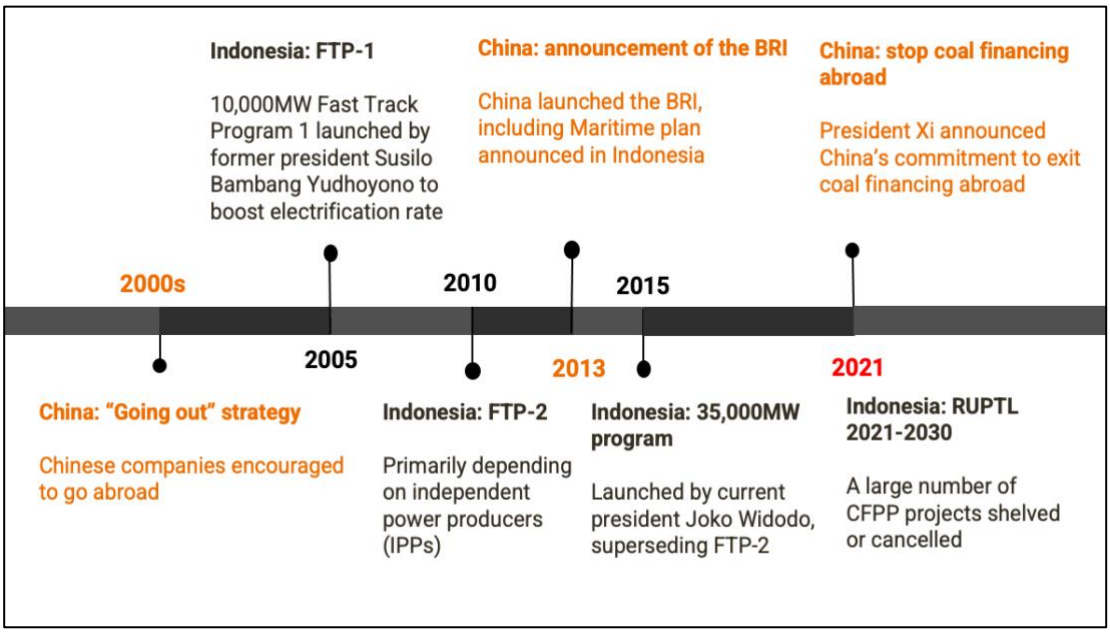


Figure 4-1 Timeline of important policies regarding Indonesia's energy infrastructure and Chinese overseas investment. Prepared by author.

Chinese participation in Indonesia's coal-fired power infrastructure development started in the 2000s, when Chinese companies followed the "Going Out" strategy to go abroad as engineering, procurement and construction (EPC) contractors. The "EPC+Finance" model, in which financing is dominated by Chinese policy bank loans, has evolved over the years, with Chinese companies taking up more ownership of projects in the form of equity investment and joint ventures (Liu et al. 2022). This aligns with China's promotion of integrated investment, construction and operation, and Indonesian government's preference towards independent power producers over foreign borrowing (P. Ren et al., 2017). On the other hand, this increase in ownership also points to more potential responsibilities in Indonesia's coal transition (Cui et al., 2023; C. H. Springer, 2022).

Studies on Chinese overseas energy investment have mainly focused on the macro level using quantitative methods (Ascensao, 2022; Y. Chen et al., 2020; K. P. Gallagher, 2018; Kong & Gallagher, 2021; Z. Li et al., 2020). Some studies have taken a multi-/single-country or regional comparative approach (K. S. Gallagher et al., 2021; C. Liu et al., 2022b; Rogelja, 2020; Tritto, 2021a), with very few focusing on project-level case studies (Boulle, 2019). Several studies show that despite being a latecomer compared to Japan and Korea, China has secured a major role in Indonesia's energy infrastructure boom (Lim, 2022; C. H. Springer & Shi, 2020). This is explained by studies that looked into the drivers of Indonesia's reliance on Chinese CFPP investments, which

discussed the country's developmental attitude, the preference of small-size (100-200MW) CFPPs, and its tolerance towards subcritical power plants as the key reasons (Edianto et al., 2022; K. S. Gallagher et al., 2021; Tritto, 2021a).

While some of the positive socio-economic impacts brought by Chinese investment in energy infrastructure through the BRI have been recognized (X. Ma & Gallagher, 2021), the environmental, social, health, and climate implications of these projects have also been researched and challenged (Coenen et al., 2020; Hadi Pramono et al., 2021). Some recent attempts include an empirical analysis of the environmental performance of China's overseas coal plants (C. H. Springer et al., 2021) and the climate change exposure of Chinese foreign direct investment (X. Li & Gallagher, 2022). An empirical study on the carbon dioxide emissions intensity of CFPPs suggested that Chinese CFPPs tend to have significantly lower emissions intensity than similar non-Chinese CFPPs in Asia (Springer et al., 2021). However, it was also estimated that the proportion of emissions from CFPPs with Chinese investment as part of total emissions from CFPPs in Asia will continue to grow (Springer et al., 2021). More specifically related to Indonesia, scholars have analyzed the social-ecological risks, including land use/land cover change, pollution and carbon emissions, threatened species, and socioeconomic risks of China's overseas investment (Hadi Pramono et al., 2021) and the investment and operational risks of CFPP projects for corporates and investors (Kang et al., 2021). Scholars also warned about the lock-in effect of CFPP projects for countries that participate in the BRI, including Indonesia, as many of these countries are entering a stage of development characterized by intense energy demand growth, which can be locked into a high carbon trajectory unless early retirement plans for CFPPs are rolled out (J. Ma & Zadek, 2019).

Against such a backdrop, Chinese President Xi Jinping announced at the UN General Assembly in September 2021 that China will no longer build overseas CFPPs (Ministry of Foreign Affairs of the PRC, 2021). However, the projects that are already planned, under construction or in operation are expected to remain. Therefore, concern and scrutiny of local and international stakeholders will continue as they examine the realities on the ground against the top-down vision (Suarez & Wang, 2022).

4.2.2 The contested coal commodity chain in Indonesia and beyond

Energy infrastructure projects are a product of social relations. It has been seen from existing studies across regions (Sovacool et al., 2022; Temper et al., 2020) that energy transition is not only technoeconomic, but also deeply social and political, which calls for a multidisciplinary political ecology perspective to investigate and understand the social movements active in the energy transition process.

Previous studies have suggested that ecological distribution conflicts (EDC, used interchangeably with terms such as ecological, environmental, or socio-environmental conflicts), defined as "social conflicts born from the unfair access to natural resources and the unjust burdens of socio-environmental costs from pollution" (Martinez-Alier & O'Connor, 1996), could form an important force for sustainability transition (Gobby et al., 2021; Scheidel et al., 2018; Temper et al., 2018, 2020). On one hand, these socio-environmental conflicts manifest the political demands and concerns of marginalized communities, as well as the non-monetized values that are often neglected in decision-making (Temper et al., 2020). On the other hand, these conflicts are also creating new norms through various strategies and channels that influence climate policies and investment flows of local and international financial institutions (Hansen & Pollin, 2020; Piggot, 2018; Thiri et al., 2022).

The Global Atlas of Environmental Justice (EJAtlas) was created to document and catalogue ecological distribution conflicts around the world (Temper et al., 2015), covering a wide range of commodity chains, including coal. As illustrated in numerous examples in the EJAtlas, the socio-environmental and health impacts of CFPPs have led to the opposition and mobilization of many local communities, which request the suspension or reparation of the damages caused by CFPPs to the environment and communities. Bottom-up anti-coal movements are considered part of the "leave fossil-fuel underground (LFFU)" movements (Martinez-Alier, 2021a, 2023). Literature on anti-coal movement shows various forms of coal dissent in the Global North such as Germany, the US, and the UK (Brown and Spiegel, 2017; Nace, 2010; Selje, 2022) and coal-rich countries such as Colombia and India (Cardoso & Turhan, 2018; Roy, 2021; Roy & Schaffartzik, 2020). Dissent on coal can yield various forms of outcomes and generate "local, yet collective and strong" impacts, including the delay or even cancellation of projects (Delina, 2021, 2022; Thiri et al., 2022). It was estimated that stopping 50 CFPPs of 1,000MW would be equivalent to avoiding the emissions of a

country similar to the size of France or Italy, assuming that no leakage would occur (Martinez-Alier, 2021a; Pellegrini et al., 2021). In the BRI context, the 1,050MW Lamu coal-fired power plant in Kenya, originally proposed with Chinese financial support, is one of the few documented examples where local civil society groups, allied with a transnational campaign, managed to stop the project from being funded and constructed (Boulle, 2019; EJAtlas, 2021).

Dissent on coal is especially important for sustainable energy futures in the Global South (Cardoso and Turhan, 2018; Delina, 2022). This is echoed by a global meta-analysis (Thiri et al., 2022) that highlighted the research gap on social movements concerning fossil fuels in certain regions and high-emitting countries. Considering that ecological distribution conflicts and social metabolism are the two sides of the same coin (Martinez-Alier, 2002; Tetreault, 2022), the research on CFPPs in Indonesia serves as an under-studied example, providing an important perspective for understanding the energy dimension of social metabolism in Indonesia and the impact of Chinese investment on it.

Several studies have looked into the contested development of the coal sector in Indonesia, mostly focusing on coal mining, especially in Kalimantan, which is home to 83% of the country's coal reserves (Brown and Spiegel, 2017; Fünfgeld, 2016; Großmann et al., 2017; Toumbourou et al., 2020). Many conflicts between the local communities and coal mining activities have taken place since much of Indonesia's coal reserves are in areas of rich biodiversity or within Indigenous territories. Besides, the influx of workers and the rivalry over employment, as well as land-rights competition, pose considerable threats to local communities.

In recent years, the anti-coal movements have spread beyond Kalimantan, and increasingly target planned and constructed CFPPs. Studies on the political economy of coal in Indonesia have suggested that grassroots organizations and international NGOs tend to have a negligible influence in Indonesia's energy policy (Jakob et al., 2020; Ohlendorf et al., 2022; Tritto, 2021a). This contradicts to some extent the findings from the above-mentioned studies on coal dissent and climate actions. Building upon empirical evidence from the EJAtlas, this article aims to provide a nuanced understanding of these "countermovements from below" (Lee, 2017).

As recognized in existing studies (Cheon et al., 2021; Sovacool et al., 2022), it is important to understand the drivers behind social mobilizations and different forms of opposition to inform

policies and corporates that might address such opposition with repression, but also with changes of design, remediation, or even cancellation. For Indonesia, a country with one of the largest stocks of existing and planned CFPPs, understanding and addressing socio-environmental conflicts is also important for exploring a pathway towards its energy transition with multi-stakeholder support.

4.3 Materials and methods

4.3.1 Research design

This study applies a mixed-method approach including interviews and a multiple-case study design (Yin, 2014). Conceptually, the paper applies a political ecology lens to investigate socio-environmental conflicts related to CFPPs in Indonesia that have involved the participation of Chinese stakeholders, especially financiers and contractors. The comparative analysis of these cases is conducted using data from the EJAtlas (further explained in section 4.3.2) to understand how the impacts of Chinese-backed CFPP projects are distributed among diverse social actors, how local and international actors respond to them through social mobilizations, and the outcomes of these socio-environmental conflicts.

By going beyond a single-case study approach, the comparative political ecology approach based on the EJAtlas framework (Martinez-Alier, 2021b; Temper et al., 2015) offers a wider systematic evidence-based enquiry into the power relations and socio-metabolic processes surrounding environmental justice struggles. This is especially helpful in interpreting the CFPP projects with Chinese stakeholders' involvement in Indonesia and situating local communities' struggles in the cross-cultural and political context. This comparative political ecology approach has been used in several research outputs based on the EJAtlas, which entail analysis on different commodities and themes at local, national and global levels, as well as comparative studies across regions (Avila, 2018; Hanaček et al., 2022; Navas et al., 2022; Scheidel et al., 2023; Tran & Hanaček, 2023).

Interviews were conducted to complement the secondary data collected for the case studies and shed light on the Indonesian socio-political context relevant to the coal commodity chain, the impact of these socio-environmental conflicts and grassroots perspectives on Chinese overseas CFPP investment.

4.3.2 Data collection

EJAtlas database

The case data analyzed in this paper were collected from the Global Atlas of Environmental Justice (EJAtlas, www.EJAtlas.org), an online inventory of ecological distribution conflicts based on scholarly and activist knowledge, which follows a pre-established coding system with over 200 data fields, including spatial, quantitative, and qualitative data (for more details regarding the methodology of the EJAtlas, see Scheidel et al., 2023; Temper et al., 2015). This also enables comparative analyses on issues such as the social actors involved in the conflicts, their forms of mobilization, and specific conflict outcomes (Scheidel et al., 2020).

The EJAtlas project started in 2012 and has nearly 4,000 ecological distribution conflict cases registered as of January 2024, many of which have led to the interruption, delay or suspension of energy infrastructure projects, including CFPP projects around the world (Castán Broto & Baker, 2018; EJAtlas, 2017, 2020b, 2021b). The EJAtlas database is based on secondary sources, such as newspapers, NGO reports, legal proceedings, and academic studies. One limitation of the EJAtlas is its uneven geographical coverage, which is partly due to the varied link with local networks and limited access to information in some regions. To address this limitation, a preliminary criterion sampling of cases was conducted based on multiple databases, keyword search and semi-structured interviews as illustrated in the next sections. The author has also added new cases (n=20) in the EJAtlas in collaboration with other scholars and activists when cases identified in the screening process and mentioned in the interviews had not yet been included in the EJAtlas.

Sample selection

The cases for the comparative analysis were selected based on a mixed-methods purposive sampling technique known as complete collection (or criterion sampling) (Teddlie & Yu, 2007). The sampling was conducted based on cases that met two criteria: (1) CFPP projects in Indonesia that has Chinese financing and/or contractor involvement, and (2) CFPP projects involving socio-environmental conflicts with publicly available documentation and/or insights from the local communities and civil society organizations.

There has been increasing availability of data on energy infrastructure projects, including ownership, contractor and geographical data, with some focusing on Chinese overseas investment.

The databases curated by Global Energy Monitor (GEM), including the Global Coal Plant Tracker (GCPT) and Global Coal Project Finance Tracker (Global Energy Monitor, 2023a, 2023b), are the most comprehensive databases providing the relevant data for this research. To identify cases based on the first criteria, the author has mainly referred to GEM's databases and cross-checked with Boston University's China's Global Energy Finance (CGEF) Database and China's Global Power (CGP) Database (Boston University Global Development Policy Center, 2022a, 2022b). The database of "Coal Power Plants in Indonesia: Ownership, Investments, and Impacts" (Tritto, 2021b) was also used to cross-check the screening results.

For the further sampling based on the second criteria, a search-engine based keyword search in both English and Indonesian language was conducted to come up with a list of CFPPs that have faced or are still facing resistance by local communities and civil society organizations. This list was further refined by the information collected during the interviews. This process resulted in a shortlist of 25 CFPP projects that have involved various levels of socio-environmental conflicts.

Both secondary and primary data was collected for the case studies under analysis following the EJAtlas framework as discussed in 3.2.1. Secondary data was collected through desktop research and content analysis of a variety of data sources to contrast and enhance the completeness of information in the description of the context, process, and outcome of the socio-environmental conflicts. Selected sources include media reports and interviews, reports from NGOs and environmental justice organizations, posts on social media, video documentaries, evidence from impacted communities, government authority documents, legal proceedings and academic papers. Primary data collection was conducted through semi-structured interviews as illustrated in the following section.

The list of 25 cases under analysis within the scope of this study and the links of these cases in the EJAtlas are provided in Appendix 4-A. The cases, when referred to in this paper, would be mentioned in the format of a combination of alphabetical and numeric ID. The alphabetical ID represents the type of the corresponding CFPP(s), including G for general, M for mine-mouth and C for captive.

Remote semi-structured interviews

The arrival of the COVID-19 pandemic has made it impossible to travel to Indonesia for fieldwork within the timeframe of this research. As an alternative, semi-structured interviews were conducted remotely. Interviews were adopted as part of the data collection method because they yield rich, in-depth qualitative data (O'Leary, 2017), which helps to enrich and verify the secondary data. These interviews were conducted with an objective to understand the conflict dynamics linked to coal in Indonesia, specifically, the driver and outcomes of local resistance towards CFPPs, as well as the bottom-up perspectives on Chinese overseas energy investment in Indonesia.

The interviews were conducted in an open-end semi-structured format, with a set of pre-determined interview questions, while specific questions were adapted for each interviewee regarding their expertise area and the CFPP projects that they are related to (see Appendix 4-B for the list of interview questions). The remote interviews with local stakeholders in Indonesia were carried out using a snowball sampling technique and followed a saturation principle, where interviews stop when additional information obtained from interviews becomes redundant or do not add to previously collected data. With a snowball sampling approach, the interviews also allowed identifying other relevant interviewees.

A total of 28 interviews were conducted between June 2021 and February 2023 with 37 interviewees involved. Interviewees covered different types of stakeholders, including local and international NGOs, government officials, company representatives, activists, and local residents. Consent was obtained from interviewees prior to the interviews, and they were informed that the interviews would be recorded anonymously. The interviews, when referred to in this paper, would be mentioned in the format of numeric ID e.g., "Interview 1" and the type of interviewee e.g., "NGO representative" (see Appendix 4-C for more details of the interviews and corresponding numeric IDs).

4.4 Results

4.4.1 Mapping out CFPPs with Chinese participation

A total of 25 cases have been identified that involve socio-environmental conflicts of varying intensity against CFPP projects with Chinese financing (loan and/or equity investment) and/or

contracting (see *Figure 4-2* and Appendix 4-A for more details). These include three major types of CFPP projects: general CFPPs (16 cases), mine-mouth CFPPs (5 cases), and captive CFPPs (4 cases) as part of an industrial complex, such as nickel smeltering. The cases, when referred to in *Figure 4-2* and the rest of the paper, are represented by corresponding case IDs listed in Appendix 4-A. The letter "G", "M" and "C" in the case IDs stand for the corresponding type of the CFPP(s), with "G" for general, "M" for mine-mouth, and "C" for captive.

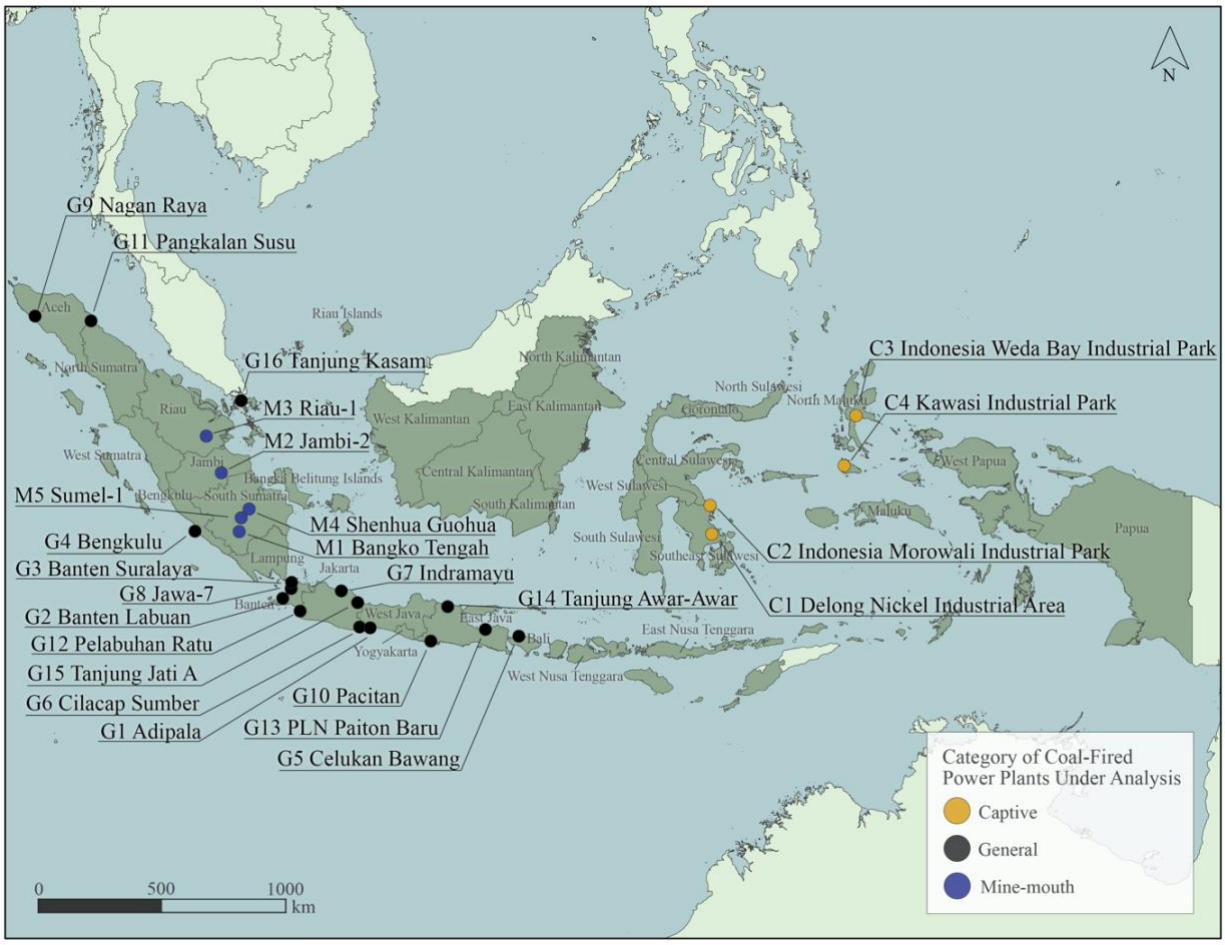


Figure 4-2 Map of socio-environmental conflicts against CFPPs involving Chinese finance and contracting in Indonesia. Data compiled by author based on EJAtlas data. Map by Arielle Landau.

The cases under analysis are in rural or semi-urban areas across 14 provinces of Indonesia. As one interviewee (Interview 9, NGO representative) indicated, "the lack of publicly known conflicts does not mean that there is a lack of environmental and social issues". The list of cases curated in this study may still not represent the full picture of local resistance. Nonetheless it provides the

most comprehensive overview to date of socio-environmental conflicts related to CFPPs with Chinese stakeholder involvement in Indonesia.

The interviews revealed that the three types of CFPP projects have varied levels of environmental and social impacts and faced varied levels of resistance. General CFPPs (G1-G16) are mostly located on the coast, making use of sea water for cooling, as well as Indonesia's sea transportation advantage to enable the transport of coal between coal producing regions such as Sumatra and Kalimantan and the CFPPs. Mine-mouth CFPPs (M1-M5) make use of the coal, mostly lignite with lower calorific value, from mining sites near the plant to reduce the transportation cost, which has also been promoted to increase domestic consumption of coal. Mine-mouth CFPPs are mostly located remotely, which makes it more difficult to monitor and expose their socio-environmental impacts. The mine-mouth CFPPs have also faced corruption controversies due to lack of transparency in PLN's developer appointment system (Hamdi, 2019). In recent years, captive CFPPs (C1-C4) linked to industrial facilities have emerged especially since Indonesia introduced the export ban of unprocessed ores in 2014 (Camba et al., 2020). These captive CFPPs support the energy-intensive smelting of minerals such as nickel, which is essential for the manufacturing of "low-carbon" technologies(Tritto, 2023) . Privately-owned Chinese companies have contributed significantly to the boom of nickel smelters and industrial parks constructed with large-scale captive CFPPs.

The 25 cases include CFPP projects with different statuses. The projects in operation were completed between 2009 and 2022. Eight cases include units that are still under construction, amounting to 12,130MW. Among the 25 cases, 13 involve units announced post the launch of the BRI in September 2013, while 14 involve units announced before the BRI. Two cases, Cilacap Sumber (G6) and Nagan Raya (G9), include units that were announced both before and after the BRI.

The scale of the non-captive CFPP projects ranges from 130MW (Tanjung Kasam CFPP, G16) to 2000MW (Jawa-7 CFPP, G8). The captive CFPP complex has a much larger scale, ranging from 2,200MW to 5,440MW. Since these captive CFPPs are not connected to the grid and not included in the RUPTL, the information on the ownership, technology and financier of these CFPPs is limited. As one interviewee (Interview 26, company representative) indicated, "No one knows how much on earth CFPP capacity is within these nickel industrial parks…a large amount has already

received pre-permit (before President Xi's 2021 announcement of no more overseas coal power)". At least 3.58GW of CFPP capacity had been planned to be added to the existing 3.16 GW CFPPs used for nickel refining in Indonesia as of 2021 (CREA and GEM, 2021).

Local resistance takes place at different stages of the projects and does not always directly target the Chinese financier or contractor. For example, some conflicts have taken place after the project was transferred to PLN or its subsidiary. In some other cases, a CFPP complex involves multiple units and a range of international financiers and contractors. For example, Chinese companies are involved in the 660MW Paiton Baru power plant (G13), while the entire 4,710MW Paiton investment CFPP complex involves ownership by PLN and its subsidiary, as well as a joint venture between French and Japanese companies. Another example is the 4,025MW Banten Suralaya complex (G3), where Chinese financier and contractor supported the 625MW unit 8 and Bank of China is known as part of the lending consortium that supported the 2,000MW unit 9-10 (also known as Jawa 9-10). A similar example is the Indramayu power plant (G7), where the first three units were built with Chinese financing, while unit 4 and 5 received financing support from Japanese investors. The protest and lawsuit against unit 4 and 5 was targeting the Japanese financier, which led to the revoking of the project's environmental permit. However, since the opposition by local residents was built upon their perceptions of the pollution from the first three units with Chinese investment, the Indramayu power plant has been included in this study.

Studies have shown that Chinese investment involves a significantly higher number of subcritical power plants in Indonesia than other foreign investors, especially under FTP-1 and FTP-2 (C. Liu et al., 2022a; Tritto, 2021a). While this may potentially make Chinese investment more susceptible to socio-environmental conflicts, the projects under analysis indicate that contestations continued despite the upgrade to supercritical or ultra-supercritical technology (e.g., in G1, G6, G8, M1), showing a similar pattern to Japanese CFPP investments (Tritto, 2021a). An interviewee (Interview 1, NGO representative) explained that the majority of Indonesia's CFPPs lack air pollutant control technologies for SO2 and NOx due to the country's lax air pollutant emissions standards and the upgrade to supercritical or ultra-supercritical technology without stricter air pollutant control measures does not necessarily alleviate communities' concerns.

4.4.2 Grassroots perceptions manifested through conflicts

The cases under analysis demonstrate the unequal distribution of environmental, social, and health impacts of CFPPs. These impacts have been reflected in the complaints and petitions of local residents and public campaigns. *Table 4-1* provides an overview of the most frequently reported impacts of these projects based on the 25 conflict cases and the interviews. The reported impacts complement the existing scholarship and grey literature on the macro-level environmental and social impacts of Chinese overseas coal-fired energy infrastructure investment and exemplify nuanced and uneven distribution of such impacts.

Table 4-1 Major environmental, social and health impacts based on the data of 25 socio-environmental conflict cases in the EJAtlas and interviews

Environmental	**Social**	**Health**
- Air pollution, Floods, Food insecurity (crop damage), Groundwater pollution or depletion, Noise pollution, Soil contamination and erosion, Surface water pollution/Decreasing water quality, Waste overflow - Biodiversity loss, Climate change, Deforestation and loss of vegetation cover, Desertification/Drought, Reduced ecological/hydrological connectivity - Loss of landscape/aesthetic degradation	- Displacement, Unemployment, Increase in corruption/co-optation of different actors, Increase in violence and crime, Lack of work security/Unemployment, Land dispossession, Loss of livelihood, Militarization and increased police presence - Loss of traditional knowledge/practices/cultures, Loss of sense of place	- Accidents, Death, Occupational disease and accidents - Mental problems - Exposure to unknown or uncertain complex risks

As shown in many cases, the burden of resisting extractive and polluting energy infrastructure projects has been overwhelmingly shouldered by local communities, especially fishing and farming communities, women and Indigenous Peoples. The result complements the quantitative analysis of the risks posed by China's overseas investment to marine socio-ecological systems (Simmons et al., 2022) and resonates with the call for "blue justice" in view of the struggles faced by fisherfolk around the world (Blythe et al., 2023; Ertör, 2021).

It is worth differentiating the claims raised by local communities, local NGOs, and international NGOs. Local communities tend to take livelihood concerns, i.e. the pollution of the CFPPs and the

impact on their day-to-day life as the starting point of their complaints, whereas the intervention of national and international NGOs have brought in more connection to climate change and climate justice issues. The convergence of the two approaches has been seen in Banten Suralaya (G3) and Celukan Bawang (G5).

In addition to visible and measurable impacts, the loss of incommensurable values has been conveyed in cases where CFPPs have affected traditional forms of fishing (e.g., in C1, G1, G3-G13) and Indigenous communities' living (e.g., in C3, M1). Besides, the CFPPs' impact extends beyond the infrastructure site and its immediate neighborhood. It travels to communities where coal is mined, to the sea where coal is transported, and to the rivers that have been intercepted, although they used to be the source for communities' livelihood, demonstrating "embodied injustice" in the coal value chain (Healy et al., 2019).

4.4.3 Social responses to CFPPs: resistance and outcomes

Mobilizing groups

A variety of mobilizing groups are involved in the 25 socio-environmental conflict cases (see *Figure 4-3*-a). Local environmental justice organizations (EJOs) are involved in 21 out of 25 cases, showcasing their essential role in the anti-CFPP movements across the country. The most active NGO is WALHI, the Indonesian branch of Friends of Earth, and its regional branches across Indonesia. However, there is no case where WALHI acts alone. It is a common strategy that WALHI collaborates with local NGOs and legal aid organizations, or works as part of a broader alliance, such as the Bersihkan Indonesia network (meaning "clean up Indonesia").

Category	Mobilizing group
High frequency (>10)	Farmers
	Fisherfolk
	Local NGOs
	Neighbors/citizens/communities
Medium frequency (4-10)	Industrial workers
	International NGOs
	Student
	Women
Low frequency (1-3)	Children
	Ethnically/racially discriminated groups
	Indigenous groups
	Informal workers
	Landless peasants
	Local scientists/professionals
	Migrant workers
	Musicians/Artist
	Trade unions

Category	Repertoires of contention
High frequency (>10)	Involvement of national and international NGOs
	Official complaint letters and petitions
	Street protest/marches
Medium frequency (6-10)	Development of a network/collective action
	Development of alternative proposals
	Lawsuits, court cases, judicial activism
	Public campaigns
Low frequency (1-5)	Artistic and creative actions
	Blockades
	Community-based participative research
	Creation of alternative reports/knowledge
	Land occupation
	Media based activism/alternative media
	Objections to the EIA
	Occupation of buildings/public spaces
	Strikes

Category	Major outcome	Number of occurances
Legal	Court decision (victory for environmental justice)	1
	Court decision (failure for environmental justice)	6
Economic	Compensation	4
Operational	Project cancelled/Withdrawal of investment	3
Socio-political	Repression, Violent targeting of activists, Criminalization of activists	2
	Migration/displacement	1

Figure 4-3 Social responses to CFPPs (n=25). 3-a (left): Mobilizing group; 3-b (middle): Repertoires of contention; 3-c (right): Outcome. Compiled by author based on EJAtlas data.

Compared to domestic NGOs, international NGOs such as Greenpeace are involved in a smaller number of "high-profile" cases such as Celukan Bawang CFPP (G5) in Bali. An international NGO interviewee (Interview 3) indicated that they would focus on specific cases with prior consideration on the potential outcome. In areas where NGOs are not intervening, investigative journalism plays an important role in uncovering local issues, with Java 7 (G8) as an example. As a journalist interviewee (Interview 24) noted, "There are movements from the local people over there. But there is limited local NGO support".

Fisherfolk and their networks are the most active local community groups in these mobilizations, which corresponds to the fact that the majority of the CFPPs, especially general CFPPs (G1-16), are located on the coast. The construction of CFPPs at coastal locations have directly affected the livelihood of fisherfolk. Women, students, farmers and artists are also important participants. In the cases of captive CFPPs, labor organizations and Indigenous community members were also involved. Despite the different nature of their grievance from environmental NGOs, the conflicts manifest the unequal distribution of social injustices that was not adequately addressed.

Women play an important role in a number of cases (such as G6, G8, G11, G15 and C1). On one hand, they suffer directly and indirectly from the pollution caused by CFPPs. As one interviewee (interview 26, NGO representative) noted, "when coal ashes come to their house, the women are

responsible for cleaning up the ashes…also the coal ashes affected lots of children and women are responsible for taking care of the children". On the other hand, women, especially mothers, have formed coalitions to protest against the CFPP projects such as in the Nagan Raya CFPP case (G9).

In some cases, local stakeholders also form alliances with international NGOs and networks, which as multiple interviewees indicated, "expanded the influence and impact of the campaigns". Local and international NGOs have served as intermediaries to bridge local communities' demands most immediately related to their livelihood with the global climate justice movements. In some cases with overseas investment from countries other than China (not included in the sample), Indonesian NGOs collaborated with financing country NGOs in Japan and Korea to file lawsuits or initiate cross-country campaigns (e.g., Batang CFPP and Cirebon CFPP (EJAtlas, 2019a, 2019b). However, such collaboration was not taken up in China.

Repertoires of contention

Figure 4-3-b provides an overview of the repertoires of contention. The cases demonstrate some common approaches, including official complaints such as filing letters and petitions and street protest. NGOs' intervention in the approval of environmental permit and environmental impact assessment, which involves lawsuits and legal procedures, is one of the most widely used tactics at local or national level. This corresponds to the results from a global level assessment of strategies used by environmental defenders (Scheidel et al., 2020). Blockades were used in a smaller number of cases as an approach to directly confront with the CFPP companies.

Artistic forms of mobilization were used in Celukan Bawang (G5) and Pangkalan Susu (G11). In the former case, Greenpeace Indonesia organized a music festival against the backdrop of the Celukan Bawang CFPP in Bali. In the latter case, the fishing community used poems in their demonstration against the Pangkalan Susu CFPP. Banners with local characteristics were also displayed in various protests (e.g., G4, G5, G11). Several interviewees (Interview 2, 3, 28, NGO representative) indicated the importance of culture in such place-based contestations. Complementing direct confrontation and legal approaches, art played the role to convey incommensurable values such as communities' traditions and emotional connections to "the land that give them food and the sea that give them fish" (Interview 28, NGO representative). This also resonates with the findings of a study on anti-coal movement in California, which highlighted the

role of artistic activism in transforming the socio-spatial dynamics that contributed to sustainable transformation (Sanz & Rodriguez-Labajos, 2021).

Interviewees also indicated the impact of the Covid-19 pandemic on their activities, including the restriction of in-person demonstrations and protests. The Omnibus Law and the revision of the Mining Law were passed in 2020, which were heavily contested before the pandemic. The political and legal environment has also led to changes in grassroots strategies over the years. As one interviewee (Interview 8, NGO representative) noted, "5-6 years ago, legal battle in court was one of our best strategies…We almost won every case. But after that, the reverse is the case. They changed the regulation about the environmental impact assessment. We can no longer file lawsuits for environmental permit (with the participatory process limited to those directly impacted)…It's more difficult for us in the legal battle".

Outcome and impact

Figure 4-3-c provides an overview of the major outcomes from legal, economic, operational and socio-political categories. Three out of the 25 projects have been cancelled or shelved, namely the expansion of Celukan Bawang CFPP (G4), and two proposed projects, Riau-1 (M3) and Tanjung Jati A (G14). The cancellation of the expansion phase of the Indramayu CFPP project (G7) was not taken into consideration, as the suspended expansion project was financed by a Japanese financier, while the initial unit 1-3 financed and constructed by Chinese companies are still in operation.

Even though it is difficult to attribute the project cancellation solely to grassroots intervention, they do form an important part of the struggles that lead to the final cancellation. Litigation strategies and the coalition between local and international campaigns have been applied in the cases where projects or expansion projects have been suspended. This corresponds to the results of studies that analyzed mechanisms that could lead to effective social mobilizations against coal related infrastructures across various locations (Delina, 2022; Fünfgeld, 2019; Nace, 2010).

The Celukan Bawang CFPP case (G5) is most frequently referred to by interviewees as a "success", while one interviewee (Interview 7, NGO representative) considered it as a "trade-off". Despite the communities' loss in court, the local government in Bali decided to cancel the expansion plan. However, it is still unclear whether the expansion will be replaced by a gas-fired power plant. The cancellation of Tanjung Jati A (G15), also known as Jawa-3, has been considered the first climate

litigation in Indonesia (EJAtlas, 2022). In June 2022, WALHI appealed against the plant's environmental permit on grounds of climate and financial impacts. The Regional State Administrative Court of Bandung granted WALHI's claim in full and revoked the plant's environmental permit.

Several interviewees (Interview 1, 2, 5, 7, 10, NGO representatives) highlighted the importance of anti-corruption movements in Indonesia, and even considered their impact overshadowing that from environmental movements. Especially with the closed procurement system for mine-mouth CFPPs, the risks of bribery and corruption often compound the socio-environmental risks of the projects. The cancellation of Riau-1 (M3) to some extent followed anti-corruption inspections that involved high-level officials in the government.

Interviewees have provided multidimensional definitions of "success" in addition to the cancellation of projects, such as the temporary delay of projects during the litigation process and the increase of public awareness and media attention. As one interviewee (Interview 8, NGO representative) noted, the point is not simply to highlight the projects that are stopped, "these are ongoing struggles part of many local communities' daily life and have been ongoing over the years, with diverse actors and outcomes involved". The same interviewee added: "If we expose the project together with the community and raise our voice against unjust projects, it can also mean winning...it means that we put a seat of resistance for the next generation as well." It is important to note that even in such broad terms, the "success" examples are still rare due to lack of capacity and of national and international NGO support in most cases.

Despite the frequent adoption of legal approaches, the results of most of the litigations, appeals and judicial review requests have not served environmental justice. Even in the "successful" case of Celukan Bawang (G5), the local court dismissed the lawsuit filed by local community members and Greenpeace Indonesia against the plant's environmental permit. This dismissal decision was subsequently upheld by the Court of Appeal and the Supreme Court. In addition, a number of interviews (Interview 3, 6, 7, 8, 10, NGO representatives) mentioned how the revision of law, including the Omnibus Law (also known as the Job Creation Law), the Mining Law, and the Corruption Eradication Law (known as the "KPK law"), has systematically weakened NGOs' participation in the decision-making process.

Some of the conflicts have led to repressions or violent targeting of activists. For example, in Indramayu (G6), three residents were arrested and accused of having insulted the Indonesian flag by raising it upside down. On the other hand, non-violent forms of repression have also been reported during interviews. As one interviewee (Interview 8, NGO representative) said: "the form of repression to the activists and communities are not always in the harsh way or violent way…They can use also, with their money, with the corporate social responsibility, provide you with clean water source, with compensation, relocation, etc."

Most interviewees from civil society organizations indicated that the local anti-coal activism does not target China or the BRI as a stand-alone stakeholder. The local communities and civil society take the impact on their livelihood as the starting point and takes initiative despite of the nationality of the investors. In some cases, the Chinese stakeholders did not directly respond to their letter or request, but indirectly addressed their concerns. As one interviewee (Interview 26, NGO representative) noted, "they may make efforts silently", indicating that the Chinese stakeholders also care about their reputation but tend to make changes without public communication.

4.5 Discussion

In the book Friction that draws upon extensive fieldwork in South Kalimantan, Indonesia, Anna Tsing briefly touched upon her encounter with a business manager from a coal trading company that imported coal from Kalimantan to India in 2000. She portraited the coal commodity chain as "an arena of cultural production" (Tsing, 2005). In the two decades following that encounter, the coal commodity chain and the frictions in this chain have evolved into a more diverse and complex cross-cultural arena in Indonesia. How do bottom-up initiatives in opposition to the CFPPs with Chinese stakeholder involvement potentially influence the "green BRI" agenda and the sustainable energy future of the host country?

Social mobilizations exist with the "hope" for a future that could be changed or transformed. The findings of this study resonate with scholars that have argued that Chinese investment abroad is significantly shaped by local socio-political contexts, which can constrain the change and transformation brought about by local resistance against CFPPs (Oliveira et al., 2020; Pavlićević & Talmacs, 2022; Rogelja, 2020; Tritto & Camba, 2022). The weak environmental governance system and the lack of redress mechanisms in the host country, in this case Indonesia, contributes

to the gap between the "green BRI" vision and realities on the ground. In absence of "green BRI" governance on the ground, the socio-environmental conflicts under analysis serve as an example of "resistance as governance" (Gobby et al., 2021) and demonstrate the valuation languages of local communities and civil society, which incorporate traditional forms of knowledge and livelihoods as well as incommensurable values that have not been considered in economic compensation and corporate social responsibility. All these take place in a context where the consumption of coal continues to increase in China, Indonesia and at the global level (IEA, 2023).

While China committed to no more overseas coal financing since 2021, the legacy of built and planned CFPPs will persist. Resonating with Rogelja's (2020) analysis in the Balkan context, the inertia from CFPP projects remains long after they are built and paid off. While studies have started to look at post-mining landscapes in Indonesia, the socio-environmental injustice legacies of CFPPs, some of which are still under construction, tend to become silenced and invisible behind the so-called "just transition" agendas. The socio-environmental conflicts analyzed in this study have made such legacies of environmental pollution and dispossession visible.

In addition, the smelting of nickel, an essential metal for energy transition, of which Indonesia is the world's top producer, has become a reason to increase the number and scale of CFPPs. The captive CFPPs under analysis demonstrate the embodied socio-environmental injustices in the energy transition supply chain and exemplify fossil-fueled "conflicted transitions" (Healy et al., 2019; Sovacool et al., 2022). The four cases on nickel-based industrial parks powered by large-scale coal-fired facilities reveal that the unequal distribution of socio-environmental impacts is embedded in the emerging "sustainable" transition. This is compounded by Indonesia's vague definition of "renewable" or "new" energy in the draft New Energy and Renewable Energy Bill (EBET), where coal chemical projects such as coal-to-gas and coal-to-oil projects have the potential to be considered as "new energy" (Interview 3, 7 and 8, NGO representative; Sulaiman & Widianto, 2022).

With regard to the conflictivity of CFPPs, the cases analyzed do not point to a "Chinese exception". In fact, a previous study observed similarities between China and the other two top CFPP financiers in Indonesia, Japan and Korea, in terms of how their CFPP investments have led to contestations, and pointed out that Japanese investments in CFPPs were even associated with a larger number of environmental and community-related issues (Tritto, 2021a). It corresponds to

"Global China" scholars moving away from "China as exception" to understand "China's mutual constitution with contemporary global neoliberalism" (Klinger, 2018).

What differentiates Chinese actors and those of other countries is their response and engagement with the grassroots and their redress mechanism. This has also led to different reactions from the grassroots, which in turn, led to different outcomes. For example, compared to Japan and Korea, there is less direct engagement of Chinese companies with local Indonesian NGOs and rare intervention of domestic Chinese NGOs in socio-environmental conflicts abroad. This to some extent concurs with studies that indicate that international NGOs are playing an intermediary role in China's "Going Out" and BRI strategy, compared to domestic NGOs that can be constrained in their knowledge of host countries' socio-political context (Farid & Li, 2021; Hsu et al., 2016). In addition, Indonesian NGOs also contribute to the intermediary role in the absence of Chinese and international NGOs as in most of the cases in this study.

As discussed in studies on other forms of energy infrastructure investment by Chinese stakeholders, the lack of communication and engagement with local communities and the lack of recognition of their values could exacerbate conflicts and lead to loss of traditional culture and identity (Dave, 2022; Gong, 2018; Hensengerth, 2017; Siciliano et al., 2019). This study echoes these observations and reaffirms the call for understanding and respecting different views and norms of local people in host countries (Chen & Liu, 2019; He & Tritto, 2022; Shi & Yao, 2019).

4.6 Case studies

The four case studies in this section have been selected to represent the diverse geography and three types of CFPPs. These include two general CFPPs located on the coast of Sumatra and Java respectively, one mine-mouth CFPP in South Sumatra and one captive CFPP complex as part of a nickel industrial park, namely Weda Bay Industrial Park, in North Maluku. *Table 4-2* provides an overview of these four cases and the role of Chinese companies and financiers based on aggregated data from the EJAtlas (2024). The cases show various forms of conflicts on the uneven distribution of socio-environmental damages, as well as the lack of recognition and representation of plaintiffs' claims.

Table 4-2 Overview of CFPPs in the case studies (Data source: EJAtlas, 2024)

Power plant	**Type**	**Location**	**Capacity (MW)**	**Chinese company**	**Chinese financier**
Teluk Sepang power plant	General	Bengkulu	200	ChinaPower	ICBC, Export-Import Bank of China
Celukan Bawang power plant	General	Bali	380	China Huadian	China Development Bank
Sumsel-8 power plant (SS-8, Bangko Tengah power plant)	Mine-mouth	South Sumatra	1,200	China Huadian	Export-Import Bank of China
Weda Bay Industrial Park captive plants	Captive	North Maluku	3,400	Tsingshan Holding Group, Zhenshi Holding Group, Zhejiang Huajun Investment Co., Ltd., Zhejiang Huayou Cobalt Co., Ltd.	-

4.6.1 Teluk Sepang power plant, Bengkulu

The Teluk Sepang Power Plant located at the Baai Island in Teluk Sepang, Bengkulu is a 200 MW coal-fired power plant as part of Indonesia's 35,000MW electricity infrastructure program (EJAtlas, 2023b). In November 2015, state-owned Power Construction Corporation of China (PowerChina) secured the power purchase agreement with PLN (GEM, 2024b). A joint venture PT Tenaga Listrik Bengkulu (TLB) was formed between PowerChina and PT Intraco Pentra (INTA), to

oversee the construction and operation of the plant under the Build-Own-Operate-Transfer (BOOT) model. The project construction took off in October 2016 (GEM, 2024b).

Compared to many other CFPP projects with Chinese investment, the scale of the Bengkulu plant is relatively small, making it seemingly inconspicuous. The story of the plant made its way to Jakarta Post in February 2020, which revealed how local residents of Baai Island protested against the power plant in response to the death of sea turtles after the first trial of the power plant (The Jakarta Post, 2020). By February 2020, the deaths of 28 turtles had been confirmed, although local authorities disputed that the turtles had died of polluted power plant water. Shortly after this incident, in response to the news that President Jokowi would be in the region for the inauguration of the plant in February 2020, local communities, fisherfolk and environmental group Koalisi Langit Biru (meaning "Blue Sky Coalition" in Bahasa) put up a 20x12 meter banner at the Teluk Sepang bay area near the Bengkulu plant, which read "Jokowi, PLTU Membunuh Laut Kami" (meaning "Jokowi, coal-fired power plant kills our sea" in Bahasa). While the President ultimately cancelled his trip for unknown reasons, the local communities' struggles continued.

The opposition towards the plant already started before the construction had begun, when the Indonesian grassroots NGO WALHI raised concerns in August 2016 (EJAtlas, 2023b). On the first day of construction in 2016, hundreds of local people (mostly fisherfolk) blocked the road leading to the plant. A petition was also sent to the governor of Bengkulu. In August 2018, several residents of Teluk Sepang protested the power plant in the streets, demanding a renewable energy alternative and urging the government to support the farmers whose land had been flooded due to the damming of a local stream by the construction team in early 2018, which allegedly led to the loss of 15 hectares of agricultural land and their crops (EJAtlas, 2023b). Also of particular concern for these protesters were the potential effects of air pollution on the environment and people's health.

In June 2019, local residents, including smallholder fishermen and farmers, with the support of environmental groups Kanopi Hijau (meaning "Green Canopy" in Bahasa) and Koalisi Langit Biru, filed a lawsuit at the Bengkulu State Administrative Court against the Teluk Sepang power plant with the goal of revoking its environmental permit (Malinda, 2021). The lawsuit was ruled in favor of the power plant operators in December 2019 after 20 trial sessions. Despite local communities and civil society' opposition, the Bengkulu power plant went into operation in July 2020 (EJAtlas,

2023b). In the meantime, the subsequent appeal at higher court level, as well as the judicial review at the Supreme Court (see *Table 4-3* for more details) all ended in failure. The judiciary failed to recognize the plaintiffs as victims with legal standing. On the occasion of filing the case for judicial review at the Bengkulu State Administrative Court, a theatrical action was performed in front of the Bengkulu Administrative Court to show opposition against the CFPP with the participation of civil society organization and students.

Table 4-3 Timeline of legal mobilization against Teluk Sepang power plant in Bengkulu (Data source: EJAtlas, 2024)

Litigation filing date	**Level of court**	**Reason of litigation**
06/2019	Bengkulu State Administrative Court	Request for revoking the environmental permit of the plant due to discrepancy in the environmental impact assessment (the abbreviation of which is typically referred to as "Amdal" in Bahasa), including inaccurate information about public acceptance and inadequate plan for earthquake and tsunami.
04/2020	Medan Administrative High Court	To appeal the decision made at the Bengkulu State Administrative Court.
07/2020	Bengkulu State Administrative Court	To submit a memorandum of judicial review to the Supreme Court.
09/2021	Supreme Court	To request for judicial review on grounds that the judge had made a mistake in the decision to reject the citizen's lawsuit from the first instance and the following appeal, and that the judge did not recognize the plaintiffs as victims with legal standing.

4.6.2 Celukan Bawang power plant, Bali

Bali is known as an island for tourism. In November 2022, Bali hosted the G20 conference, where the Indonesian Just Energy Transition Partnership (JETP) was signed to support Indonesia's just energy transition. However, few of those visiting Bali would know about the 426 MW coal-fired power plant located at Celukan Bawang Village in Buleleng District on the northern side of the island. Built by PT General Energy Bali (GEB), which is owned by China Huadian Engineering (51%), Merryline International Pte. Ltd, and PT General Energy Indonesia, the Celukan Bawang power plant has been supplying 40% of Bali's electricity since 2015 (EJAtlas, 2023a).

The constructor and operator of the Celukan Bawang CFPP, China Huadian, published a video shortly before the G20 summit. The script said: "The enchanting island, is a magnet for tourists from around the globe. However, few know that nearly half of the electricity powering the island is provided by me. The Celukan Bawang power plant, invested in and built by China Huadian vividly embodies the Belt and Road Initiative concept for peaceful development and win-win cooperation". However, in contrast to China Huadian's narrative, the communities have been fighting against the socio-environmental impacts of the Celukan Bawang power plant and its expansion plan for years. One of the most recent protests took place only three months before G20 in 2022, as a barge loaded with over 9 tonnes of coal to be used by the Celukan Bawang power plant got stranded near the shore of Celukan Bawang village in August 2022 (EJAtlas, 2023a). Ten local fishermen launched a protest outside the Governor's office and urged officials to take direct action over the coal spill in the coastal waters of Buleleng.

The villagers' opposition to the CFPP was supported by both local and international NGOs such as Greenpeace. In January 2018 three community members, supported by Greenpeace and Bali Legal Aid Foundation, initiated a legal action to stop the expansion of the plant. The case is known as *Wijana, Sufarlan, Astawa, & Greenpeace Indonesia v. Governor of Bali*. The community members were concerned with the potential impacts on their livelihoods, while Greenpeace was concerned with the climate and environmental impacts. The lawsuit was rejected by the Denpasar State Administrative court on procedural grounds as the court considered that the plaintiffs did not have legal standing because they did not suffer any loss (GEM, 2024d). Similar to the Bengkulu case, the dismissal at the lower court was upheld by the Surabaya High Court and the Supreme Court. Despite the failure in court, the controversy of the power plant raised the attention of the new

governor of Bali at the time, Wayan Koster, who requested that the Celukan Bawang power plant need to be converted to more sustainable fuel, such as gas, instead of coal (EJAtlas, 2023a).

As in the Bengkulu case in the previous section, and many other cases of environmental conflicts around the world, mobilization also takes artistic forms in Bali, including a music festival named Summer Festival 2.0 organized by Greenpeace near the Celukan Bawang CFPP in August 2019. The Indonesian musicians that participated in the concert later released an album titled “Senandung Energi Bumi” (meaning “Hum of the earth energy” in Bahasa). In addition, the Greenpeace Rainbow Warrior ship staged a solidarity campaign near the coast of Celukan Bawang, where banners were held bearing the slogan s such as “End Coal” and “Tolak PLTU Batubara” (meaning “Reject coal-fired power plant”).

4.6.3 Bangko Tengah power plant, South Sumatra

Sumsel-8 power plant, also known as SS-8 or Bangko Tengah power plant, is a mine-mouth CFPP as part of Indonesia's 35,000MW program (EJAtlas, 2023d). Mine-mouth CFPPs make use of the coal, mostly lignite with lower calorific value, from mining sites near the plant to reduce the transportation cost, which has also been promoted to increase domestic consumption of coal in Indonesia (Gu, 2024). With a capacity of 1,320 MW, Sumsel-8 power plant is the largest mine-mouth power plant in Indonesia and Southeast Asia. It is located at the Tanjung Lalang village, in Muara Enim Regency of South Sumatra Province, 2km away from the Bangko Tengah coal mine. The plant is developed by PT Huadian Bukit Asam Power (PT HBAP), a joint venture consortium formed by Indonesian state coal miner PT Bukit Asam Tbk (PTBA, 45%) and China Huadian (55%).

The Sumsel-8 power plant is a national strategic project and is expected to connect with PLN’s substation at Muara Enim through a newly constructed 45km extra-high voltage 500kV transmission network built by the HBAP consortium. It was reported that the construction of the transmission line passes through community-owned (ulayat) land, which allegedly caused conflicts between the communities and the mining company (PTBA).

According to grassroots NGO AEER, the ulayat land was claimed unilaterally by the oil palm plantation company PT Sawindo Bumi Permai (PT SBP) in the 1990s, while the plantation land amounting to approximately 10,000 hectares owned by PT SBP was then sold and acquired by

PTBA in 2014 for the purpose of coal mining in the area (EJAtlas, 2023d). The villagers, through village heads and Indigenous community leaders, objected and protested against the acquisition process and then formed the Tanjung Agung Bersatu Community Forum (FMTAB) to carry out actions to close the access road to oil palm plantations owned by PT SBP. The actions lasted for 9 months until two community members were arrested and criminalized in violation of article 2 of the Emergency Law No.12 of 1951 related to the possession of sharp weapons (GEM, 2024a). It was also reported that the villagers refused the company's negotiation offer, e.g., compensation money and the construction of infrastructure facilities such as roads and house of worship in the Tanjung Agung village, and insisted on demanding the return of the customary land to the village.

AEER sent a letter in early 2021 to express the environmental and social concerns regarding the SS-8 power plant project to the main financier, the Export-Import Bank of China, and the lead company building the project, China Huadian Corporation, as well as the Chinese Embassy in Jakarta. AEER has yet to receive a response from Export-Import Bank of China and China Huadian. However the Export-Import Bank's chairwoman indicated in an interview in March 2022 that it would no longer finance new overseas coal power projects and will remain committed to supporting emission reduction upgrades for completed projects (EJAtlas, 2023d).

4.6.4 Coal-fueled Indonesia Weda Bay Industrial Park (IWIP), North Maluku

The Indonesia Weda Bay Industrial Park (IWIP) is a mega-nickel integrated mining and smelter project and also the "first vertical, from mine mouth to finished products, integrated Electric Vehicle battery and stainless steel industry complex in the world" (IWIP, n.d.). It is located in Weda, Central Halmahera Regency, North Maluku. The IWIP is one of Indonesia's strategic projects, designed to expand its domestic nickel processing capacity after the country banned unprocessed ore exports. It is a joint venture between three Chinese companies, namely Tsingshan Group (40% shareholding through its subsidiary Perlus Technology), Huayou Group (30%) and Zhenshi Group (30%) (EJAtlas, 2023c).

The construction of the industrial park started in 2018, including the planned development of ferronickel, cobalt, and battery production, as well as captive power plants to fuel the energy intensive smelters (EJAtlas, 2023c). It was estimated that the total coal-fired power capacity operating or under development at Weda Bay is at least 3,400 MW (GEM, 2024c), although the

off-grid nature of captive power plant and the lack of transparency makes it difficult to estimate the exact capacity of CFPP in operation and under development.

IWIP is located in one of the least-populous islands in Indonesia, the Halmahera Island, which is mostly covered with forests and mountains and home to approximately 28 ethnic groups (Climate Rights International, 2024). Over the years, the Indonesian government has been trying to resettle the Indigenous group in the region outside the forest and force them to adopt conventional settled lifestyles instead of their traditional nomadic lifestyle. One of these groups is called the O Hongana Manyawa (also referred to as Tobelo Dalam), which means "forest people" in their indigenous language. They are one of the five last remaining nomadic Indigenous Peoples in Indonesia and categorized as endangered according to Aliansi Masyarakat Adat Nusantara (Indigenous Peoples Alliance of the Archipelago, AMAN), the main representative organization for Indonesia's Indigenous peoples. According to an interview with Tupa, member of the six remaining tribes that are still practicing the traditional nomadic lifestyle in the forest, "Trees are gone and replaced with the big road, where giant machines go in and out making noise and driving the animals away" (EJAtlas, 2023c). For the remaining tribe members in the forest, the forest is not only a place to inhabit and find sources of food, it is "also a home and 'the bridge' that connects them with the spiritual world" (EJAtlas, 2023c). It was also reported that the reclamation of nickel ore storage areas by IWIP in the Karkar area affected local fishing activities that used to take place in the same area.

The villagers of Lelilef Sawai, Lelilef Waibulan, and Gemaf complained about respiratory problems due to air pollution from the captive CFPPs that use low calorie coal. Local residents also had restricted access to clean water, with the Ake Sake River dammed and diverted for the construction of one of the IWIP smelters and other rivers such as Seslewe Sini and Kobe polluted. The increase of logging and the damming and diversion of the Ake Sake River has led to deforestation and reduced water absorption capacity and contributed to the flood that took place in August 2020 which inundated the villages and roads, including the IWIP area.

Some local residents had no other choice but to sell land to the company and the bid price from the companies was low (e.g., IDR 8,000-9,000 per m^2, equal to around half a euro) based on regional regulations. While the majority of the residents have sold their land, a few have refused to do so. Some protests took place in 2019 by the relatives of O Hongana Manyawa band that live in Akejira

forest. Another protest took place in July 2020, when 450 South Wasile residents walked for two days to Kao Rahai, where PT WBN was opening a new nickel mining area, and blockaded roads by building tents and halting mining activities. In addition, there were protests from students and civil society organizations in Ternate, a major city in North Maluku. On 23 October 2019, another demonstration was held by Aliansi Masyarakat Ake Jira Halmahera (the Ake Jira Halmahera Community Alliance, AMARAH) in front of the Ternate Mayor's office. The crowd carried banners with "Selamatkan Ake Jira" (meaning "Save Ake Jira" in Bahasa).

Despite complaints and protests, the operation of IWIP and the construction of new coal-fired power plants has continued, while residents of Tobelo Dalam that lived in Ake Jira seemed to have left their original residential area (EJAtlas, 2023c).

4.7 Conclusion

The 25 cases in this study, including the case studies in the previous section, exemplify the frictions in broader global connections where Chinese energy infrastructure financing and contracting has been playing an increasing role. Frictions are sometimes unavoidable when planning and constructing energy infrastructure projects. In Indonesia, projects financed and supported by other countries such as Japan and Korea also received various forms of opposition. However, Chinese stakeholders have been less communicative and responsive when confronted with such frictions. This calls for more transparent communication and engagement with local communities to resolve such conflicts and retain the reputation of project financiers as well as engineering companies. Public participation and feedback from bottom-up mobilizations could potentially provide risk warning signals for Chinese companies that conduct overseas CFPP investment and reduce operational risks, while also preventing and alleviating socio-environmental conflicts.

The year 2023 marked the 10-year anniversary of the announcement of the BRI. While the research on the BRI and Global China has been advancing over the years, more studies are still needed to understand the environmental justice and climate change implications from the bottom-up perspective, including the "blue justice" dimension. This study proposes an alternative approach to make visible the grounded perspectives of the BRI, by looking at socio-environmental conflicts with the participation of communities and civil society based on the EJAtlas database. Through a

systematic mapping and analysis of 25 cases in the EJAtlas, this study points to the need to examine the social and political reality on the ground and reinforces the call for a research agenda on BRI that not only takes into consideration the China-side perspective, but also situates in the local socio-political dynamics, including the politics from below, that shapes the vision and frictions of a “Green Belt and Road”.

The connection with international networks and broader alliances that bridge the local livelihood and environmental concerns with the global climate crisis helps to support local struggles amidst domestic political constraints and global capital influence. However, local communities in Indonesia, especially fisherfolk, have been shouldering a large proportion of the resistance against injustices brought out by CFPPs. This calls for more studies on the impact of Chinese investment on marine socio-ecological systems and coastal livelihoods in addition to terrestrial and more visible effects.

The development of “sustainable” energy transition also requires huge amount of fossil-fueled mining and processing that could be important for both BRI governance and Indonesia’s just transition. It might lead again to unequal distribution of social, environmental and health impacts as coal-fired energy infrastructures have done. Revealing the grassroots perceptions and resistances helps to understand why and how grassroots opposition to energy infrastructures empowers marginalized voices. It also calls for research and policy efforts that take such perspectives into consideration, instead of perceiving them as passive recipients of an energy infrastructure boom intertwined in the influence of Global China.

Appendix 4-A List of CFPPs and EJAtlas cases in Indonesia

Case ID	Name of case in EJAtlas	Name of related CFPP	Type
G1	Adipala coal-fired power plant, Bunton, Central Java, Indonesia	Adipala power station	General
G2	Banten Labuan coal-fired power plant, Banten, Indonesia	Banten Labuan power station	General
G3	Banten Suralaya Coal-fired Power Complex, Banten, Indonesia	Banten Suralaya power station	General
G4	Bengkulu Coal-fired Power Plant, Indonesia	Bengkulu power station	General
G5	Celukan Bawang Coal Power Station, North Bali, Indonesia	Celukan Bawang power station	General
G6	Protest against pollution from coal power plant, Cilacap, Central Java, Indonesia	Cilacap Sumber power station	General
G7	Indramayu Coal Power Plant, West Java, Indonesia	Indramayu power station	General
G8	Java 7 Coal-fired Power Plant, Indonesia	Jawa-7 power station	General
G9	Nagan Raya Coal-fired Power Plant, Aceh Province, Indonesia	Nagan Raya power station	General
G10	Coal fired power plant near conservation areas in Pacitan, East Java, Indonesia	Pacitan power station	General
G11	Pangkalan Susu Coal-fired Power Plant,	Pangkalan Susu power station	General

	North Sumatra, Indonesia		
G12	Coal spill near Pelabuhan Ratu Coal-fired Power Plant, West Java, Indonesia	Pelabuhan Ratu power station	General
G13	Paiton Baru power plant, East Java, Indonesia	PLN Paiton Baru power station	General
G14	Tanjung Awar-Awar power plant, East Java, Indonesia	Tanjung Awar-Awar power station	General
G15	Tanjung Jati A coal-fired power plant, Indonesia	Tanjung Jati A power station	General
G16	Tanjung Kasam power plant, Riau, Indonesia	Tanjung Kasam power station	General
M1	Sumsel-8 coal-fired power plant, South Sumatra, Indonesia	Bangko Tengah power station	Mine-mouth
M2	Proposed Jambi-2 coal-fired power plant, Jambi, Indonesia	Jambi-2 power station	Mine-mouth
M3	Proposed Riau-1 coal-fired power plant shelved after corruption investigation in Indonesia	Riau-1 power station	Mine-mouth
M4	Simpang Belimbing power plant, South Sumatra, Indonesia	Shenhua Guohua power station	Mine-mouth
M5	Sumsel-1 coal-fired power plant, South Sumatra, Indonesia	Sumsel-1 power station	Mine-mouth
C1	Nickel rush threatens the health and environment of Obi Island's people, Indonesia	Halmahera Persada Lygend Nickel Smelter power station, MSP Pulau Obi Power Station	Captive
C2	Indonesia Morowali Industrial Park	Sulawesi Mining power station	Captive

	(IMIP), Central Sulawesi, Indonesia		
C3	Indonesia Weda Bay Industrial Park (IWIP), North Maluku, Indonesia	Weda Bay power station, Youshan Nickel power station, Weda Bay Nickel Mines Ltd. power station	Captive
C4	Delong Nickel Industrial Area, South Sulawesi, Indonesia	Delong Nickel Phase I, Delong Nickel Phase II	Captive

Appendix 4-B List of interview questions

Introduction

- Self-introduction and introduction about your organization
- How does your organization work on coal and energy issues?

The political economy context of coal in Indonesia

- The political and legal context in Indonesia: What are the most important agencies, policies and regulations affecting the coal sector, and how does it impact the local resistance towards coal?
- The 35GW plan and the two phases of fast-track program (FTP): What is the impact on energy access and the environment? Is energy security and cost a justified rationale for developing coal-fired power plants (CFPPs) in Indonesia?
- International stakeholder and China's involvement: What do you think of the involvement of international investors and companies in Indonesia's coal sector? Is there any difference by country? How do you consider China's role with the BRI?

The driver, outcome and impact of local resistance towards coal (power plant)

- What is your organization's coal-related research and campaign focused on? Which local resistance movements against CFPP has your organization supported?
- Who are the key stakeholders behind the resistance? Any connection/collaboration with international stakeholders and global climate justice campaigns?
- What are the main reasons of local resistance towards CFPP? Is there a difference by location, nature of specific power plants, or other factors?
- How is the impact of local resistance towards coal? What are the most successful examples?
- How do you think of the coverage of environmental justice movements in the EJAtlas? Would you suggest any additional cases?
- What are the key strategies? Which are the most successful ones?
- Some of the protests included artistic form. What kind of role does art play in local mobilizations in Indonesia?
- Underlying factors that enable local resistance to have an impact/positive outcome?

Forward-looking alternative solutions

- What are the key expectations from the local community and NGOs? (short-term and long-term expectations)
- What is the outlook of the coal (mining and power plant) sector in Indonesia? What are the key factors affecting such, both domestic and international?
- What is your view on Indonesia's development of the coal chemical industry, e.g., coal-to-gas projects?

Appendix 4-C List of interviewees (anonymized)

Interview	Interviewee	Type	Interview method	Interview Date
1	1	NGO (International)	Zoom call	21/05/2021
2	2	NGO (Indonesia)	Zoom call	24/05/2021
3	3a	NGO (International)	Zoom call	25/05/2021
3	3b	NGO (International)	Zoom call	25/05/2021
4	4	NGO (Indonesia)	Zoom call	27/05/2021
5	5	NGO (Indonesia)	Zoom call	01/06/2021
6	6a	NGO (Indonesia)	Zoom call	28/05/2021
6	6b	NGO (Indonesia)	Zoom call	29/05/2021
6	6c	NGO (Indonesia)	Zoom call	30/05/2021
7	7	NGO (Indonesia)	Zoom call	31/05/2021
8	8a	NGO (Indonesia)	Zoom call	03/06/2021
8	8b	NGO (Indonesia)	Zoom call	03/06/2021
8	8c	NGO (Indonesia)	Zoom call	03/06/2021
8	8d	NGO (Indonesia)	Zoom call	03/06/2021
9	9	NGO (Indonesia)	Zoom call	04/06/2021
10	10	NGO (Indonesia)	Zoom call	04/06/2021
11	11	NGO (Indonesia)	Zoom call	04/06/2021
12	12	NGO (Indonesia)	Zoom call	09/06/2021
13	13	NGO (International)	Zoom call	09/06/2021
14	14	NGO (International)	Zoom call	09/06/2021
15	15	Government official	Zoom call	16/06/2021
16	16	NGO (Indonesia)	Zoom call	24/06/2021
17	17	Corporate staff	Zoom call	24/06/2021
18	18a	NGO (Indonesia)	Zoom call	30/06/2021
18	18b	NGO (Indonesia)	Zoom call	30/06/2021
19	19	NGO (Indonesia)	Zoom call	28/07/2021
20	20	NGO (International)	In-person meeting	30/07/2021
21	21	NGO (Indonesia)	Zoom call	22/02/2022
22	22	NGO (Indonesia)	Zoom call	01/03/2022
23	23	Community member	Facebook message	17/05/2022
24	24a	Journalist	Zoom call	12/07/2022
24	24b	Journalist	Zoom call	12/07/2022
25	25	Journalist/Community	Email	15/07/2022
26	26	Corporate staff	In-person meeting	16/08/2022
27	27a	Youth	In-person meeting	04/09/2022
27	27b	Youth	In-person meeting	04/09/2022
28	28	NGO (International)	Zoom call	10/02/2023

Chapter 5. Conclusion and future research agenda

This chapter reviews the transversal findings, summarizes the key contributions of this thesis, and reflects on the prospects for future research.



A vast array of solar panels on top of post-mining land reclamation areas at a coal mine in Wuhai, Inner Mongolia. Photo credit: Bowen Gu (2021).

5.1 Main findings

In 2020, the Chinese leadership announced that China would reach peak carbon emissions by 2030 and carbon neutrality by 2060 (Liu et al. 2023). From such high-profile dual carbon goals to which was added an overseas coal exit announcement, the official position moved also to prioritizing coal for domestic energy security. Top-down decision making features China's climate governance in recent years. But how about bottom-up environmental and climate activism? Could grassroots grievances, claims and initiatives against the environmental, health and climate impacts of coal contribute to the sustainability transition of the coal sector in China and areas where Chinese investments have taken place? Are they connected with movements around the globe that contribute to leaving fossil fuels underground? These are the questions that the thesis departed from.

5.1.1 Environmental justice without borders

To start with, I grounded my exploration in two distinctly different countries from socio-political perspectives: China and Indonesia, the latter of which serves as a case study country for Chinese overseas coal investment. At a first glimpse, the questions that I aimed to address would lead to pessimistic answers. The coal dissent from the bottom up has almost been invisible in China where civil society tends to adopt a depoliticized self-censorship approach under the authoritarian regime. The amount of CFPP capacity approved or under construction in China in the first half of 2023 alone is enough to power the whole Germany (Champenois et al. 2023), a scale enough to undermine the aggregate of grassroots climate movements globally that may have successfully led to "leaving coal in the hole". In contrast to the widely participated Global Climate Strike led by Greta Thunberg, which allegedly involved 7.6 million people across 186 countries in September 2019, climate justice is considered "not just an unfinished, but also a non-started cause in China" (Wu 2019 p. 197). The answer might be more positive in Indonesia, the top recipient of Chinese coal finance, as well as the world's fourth largest democracy by population. Grassroots movements, ranging from environmental, anti-corruption, to agrarian movements, are indeed more visible in Indonesia, although the country also had a history of three decades under Suharto's authoritarian regime prior to the post-Suharto era under the influence of Reformasi and neoliberalism (Peluso et al. 2008).

Understanding this backdrop but without prior judgement, I started the search for answers, not from top-down green visions and commitments, but from below, where I looked for grassroots perceptions and signs of contention. Throughout this thesis, I examined 30 empirical cases of coal conflicts and 64 coal-related public interest litigations in China, as well as 25 cases of socio-environmental conflicts related to coal-fired power infrastructure with Chinese involvement in Indonesia, to demystify coal-related environmental activism and their effects in China and "Global China".

Most of the cases analyzed concern local grievances. There are links among the cases in Indonesia, while there are tenuous links among the cases in China. Despite the lack of visible cross-country linkages in grassroots initiatives between China and Indonesia, the empirical evidence shows much overlap of grievances and repertoires of contention from communities and NGOs in China and Indonesia. From complaint, petition, litigation, to protest, the same socio-environmental impacts of coal, though with variations due to geography and geology, have been manifested through various forms of ecological distribution conflicts. Moreover, incommensurable values such as traditional forms of livelihoods, Indigenous and ethnic minority groups' culture, as well as the sense of belonging and attachment to traditions, have been commonly expressed. While their vocabulary of environmental justice may be different based on local languages and culture, there is almost no "language gap" in their languages of valuation.

In addition, the supralocal and transnational linkages exist, not only because of the common grievances they were claiming for, but also because the coal commodity chain and the associated socio-environmental impacts transcend boundaries, by train and by sea. For example, in addition to being the largest recipient of Chinese coal-fired power infrastructure investments, Indonesia is also the top coal exporter to sustain China's increasing coal demand. Indonesian coal was explicitly mentioned as the source of CFPPs in China in some EIA reports, including a few coastal CFPPs that were contested by local fishing-based communities and mentioned in Chapter 2. The fishing communities in Hainan that oppose the building of CFPPs and the villagers in Sumatra or Kalimantan's coal extraction frontiers in Indonesia, are thus invisibly connected, through the same quest for clean environment and sustainable livelihoods. This is also the case in domestic China, where local grievances could be traced throughout the coal commodity chain, from where coal is mined to where coal is burnt, despite the lack of a nationwide network for anti-coal movement. This linkage may correspond to what (Healy et al. 2019) considered as embodied energy justice,

while also echoing Martinez Alier et al.'s (2016) claimed existence of a global environmental justice movement, despite the absence of single united organizations.

5.1.2 From overseas coal exit to coal-fueled energy transition

In contrast to the commonality of grassroots grievances, China's top-down decision making diverged in its overseas coal exit and domestic coal expansion since 2021. Nedopil (2023) used the "panda-dragon" dichotomy in the analysis of this divergence. Not surprisingly, but alarmingly, Nedopil (2023) attributed China's high-profile overseas coal-exit announcement at the UN Global Assembly in September 2021 to a move for maximizing its reputational gains through "green soft power", while the logic behind the decision seems to be based "foremost on economic rather than long-term environmental consideration". In contrast and parallel to this overseas coal exit move, domestic coal expansion has taken place justified with the quest for energy security, which has been top leadership's priority after China was hit by blackouts and forced load-shedding in a few provinces due to increased demand, inadequate supply and high coal prices in late 2021 (Champenois et al. 2023). This divergence may be read as a mixed signal: it seems a positive outcome for coal-exit prospects in Indonesia, with potentially no more CFPP investments from China, while it seems more concerning for domestic China due to the lock-in effect of its coal dependence. However, a closer project-level examination as exemplified in Chapter 4 may partly revert this impression.

While China committed to no more overseas coal financing since 2021, it is important to note that the legacy of built and planned CFPPs persists, resonating with Rogelja's (2020) analysis in the Balkan context. In Indonesia, this points to the sustained impacts on coastal communities, in particular fisherfolk, calls for more attention to the "blue justice" dimension in BRI governance.

Moreover, the smelting of nickel, an essential metal for energy transition, of which Indonesia is the world's top producer, has become a reason to increase the number and scale of CFPPs, many of which are funded by Chinese investors as part of nickel industrial parks. The captive CFPPs exemplify fossil-fueled "conflicted transitions" (Healy et al., 2019; Sovacool et al., 2022). It is important to recognize that the development of "sustainable" energy transition also requires huge amount of fossil-fueled mining and processing that could be important for both BRI governance and Indonesia's just transition. It might lead again to unequal distribution of social, environmental

and health impacts as coal-fired energy infrastructures have done, despite China's overseas coal exit commitment.

5.1.3 Rough justice in environmental litigation

Admittedly, the difference in political opportunity structure in China and Indonesia put different constraints on grassroots grievances and their potential to evolve into broader social movements to leave fossil fuels underground. For example, mass protest is more common and feasible in Indonesia, compared to China where protest is mostly forbidden if not impossible. Amongst the repertoires of contention, litigation stands out as one the most common tactics despite differences in socio-political dimensions. Looking into history, even during the three decades of Suharto's authoritarian regime under New Order, where political opposition was intolerable, environmental law and advocacy was proved to be a safe space for activists in Indonesia (Peluso et al. 2008). This gave rise to legal aid NGOs that continued to support communities and NGOs in their anti-coal movements in Indonesia, as seen in cases mentioned in Chapter 4. A similar trend is observed in China, where public interest litigations have emerged to rightfully contest the irresponsible behaviors of companies. Indonesian NGOs also collaborated with NGOs in Japan and Korea to file lawsuits against coal financiers in these two countries, but such collaboration was not taken up in China.

As seen in many cases and from the interviews with lawyers, sometimes the litigations were mobilized even without the expectation to win in court. For communities and NGOs, this is one of the few legally permitted opportunity windows to voice their grievances, some of which concern procedural justice, while others may relate to incommensurable values. The litigation process itself opens a space for opposition, negotiation, and mediation, which would otherwise not be possible due to the power imbalance between civil society and coal corporates, mostly state-owned (in China's case) or entangled with oligarchs (in Indonesia's case).

Despite the wide adoption of legal mobilization, the success rate of winning in court is low. PILs in China, many of which resulted in a negotiated monetary ecological compensation, exemplify what Stern (2013, p.138) termed as "rough justice". The outcomes of PILs and the compensation amounts are a result of balancing between "a near overwhelming state imperative for economic growth with concerns about vulnerable groups, pollution, and social stability", which primarily

rely on the judge's decision making and "informal problem solving to maintain local harmony". Moreover, this reduction of environmental injustices to a single number of monetary compensation may to some extent compromise environmental justice claims, and conceal the plurality of valuation languages that would otherwise be reflected in ecological distribution conflicts outside the courtroom.

The more recent attempts of NGOs to file litigations on grounds of climate related impacts raise the hope for holding corporates accountable not only for local socio-environmental impacts, but also broader and more invisible impacts. This could add a new pillar to the lens of rough justice, where judges may also take into account the climate imperative recognized by the state, at least on paper, in their apparatus. As a result, the first climate litigation attempts in both China and Indonesia, which were mentioned in Chapter 3 and Chapter 4, received positive outcomes, with the former leading to commitment by the state-owned grid company to increase its investment in renewable energy transmission (as discussed in section 3.6.3) and the latter leading to the permanent cancellation of Tanjung Jati A power plant.

5.1.4 Slow justice

This thesis has covered a wide range of case studies from the 2000s to date. Tracing the lengthy and costly processes of these ecological distribution conflicts can bring in both hope and despair. As much as how "rough justice" is double-edged, "slow justice" has been coined by scholars to show how the temporality of judiciary processes and environmental justice movements can also be a double-edged sword. Conde et al. (2023) highlighted how judicial processes could be used by companies to intentionally delay proceedings and constrain the resources of the plaintiff and affected victims, and vice versa, though the former is more dominant. On the contrary, Neville and Martin (2023) referred to slow justice to underscore the "often obscure, indirect, and long-term accrued benefits of environmental justice work".

In earlier chapters, I have touched upon case studies where NGOs either used the litigation as a tactic to temporarily suspend CFPPs or faced lengthy processes that involved procedural injustices. The lengthy process of the continuous negotiation and accommodation of power from top-down exemplifies slow justice aligned with the observations of Conde et al. (2023). However, I want to

conclude with some more positive perspectives on this front and thus relate to and reflect on the interpretation of slow justice by Neville and Martin (2023).

As many scholars have observed, the space and chance for radical transformation through grassroots intervention seem increasingly constrained in China. But one should not lose hope on gradual and seemingly slow changes. In a context where the media is closely scrutinized and mass protest suppressed, NGOs and activists have navigated through the most feasible channels to reach their goals, ranging from raising the voices of local communities and public interest litigations, to policy advocacy for legislation. These indicate that the evolving socio-political context in China can indeed be both restrictive and conductive to ecological distribution conflicts. These may not directly lead to material effects as "leaving coal in the hole" but the accumulated efforts contribute to building a socio-political culture needed for challenging corporate social irresponsibility and local protectionism, enhancing public information disclosure, as well as grassroots participation.

Last but not the least, I would conclude with a remark on the "unlabeled" environmental and climate justice efforts in China and its connection to the broader international climate justice movement. Considering China's high dependence on coal and its climate implications, it could be argued that any grassroots activism related to the coal value chain could be considered as a direct or indirect approach towards climate justice in China's context. The coal-related ecological distribution conflict cases may seem disconnected from the broader international climate justice movement, but the grievances that they attempt to respond to, and their objectives and visions, are aligned with climate justice principles and to some extent share the same challenges as climate activists in other countries in the Global South. This thesis thus contributes to the understanding of "peripheral" and "indirect" climate justice movements that may not directly refer to "climate" or "climate justice" in their name but are built upon recognizing the complexity and intersectionality of the climate crisis in their local or regional context and can potentially help move climate action forward even in countries where open confrontation of authorities is extremely difficult if not impossible.

5.2 Contributions

Despite China being the largest producer and consumer of coal worldwide, socio-environmental conflicts over coal in China have remained largely unaddressed. The space of environmental

activism, as well as academic research on environmental activism, is also increasingly limited in China and became even more constrained in the past few years due to the Covid-19 pandemic. This thesis contributes to filling this gap through bringing in innovative empirical findings, based on fieldwork across coal frontiers in China between 2021 and 2023, as well as remote interviews and secondary data collection. This study provides a timely response to the call for grounded research on grassroots responses to environmental and climate justice in the Global South. It also contributes to the broader debate on the role of environmental activism in China's environmental and climate governance.

Building upon the comparative political ecology analysis of coal-related ecological distribution conflicts, this thesis contributes to key debates at the intersection of ecological economics and political ecology. It contributes to a growing body of literature that explores how ecological distribution conflicts take shape in different socio-political contexts, including in an authoritarian context where EDCs have been less explored. It builds upon and complements existing scholarship on ecological distribution conflicts and the incommensurability of values in environmental governance, and opens the way to further research on this front in China.

The thesis sheds light on the diverse roles that environmental activism, resistances, and social movements may play in shaping sustainability pathways. More specifically, from a socio-legal approach and building upon a unique dataset of 64 public interest litigation cases related to the coal sector, this thesis contributes to the understanding of the role of grassroots legal mobilizations in environmental justice movements especially in China's context.

While the research on the Belt and Road Initiative and Global China has been advancing over the years, this thesis contributes to filling the gap in understanding the environmental justice and climate change implications from the bottom-up perspective. This thesis presented an innovative approach to conduct countrywide analysis of socio-environmental conflicts in the Belt and Road Initiative through engaging with the EJAtlas and knowledge co-creation with grassroots organizations in the host country, Indonesia.

5.3 Prospects for future research

The cover photo of this chapter displays a vast array of solar panels on top of the land reclamation area of a coal mine in Wuhai, Inner Mongolia in northern China. A similar scene appeared in

Huainan, the coal capital of East China, where solar panels floated on top of water areas created by land subsidence due to coal mining. Coal frontiers like Inner Mongolia and Huainan, in the process of energy transition and ecological recovery, are becoming new frontiers of "green grabbing". Similar trends are also visible in Indonesia, where Chinese investments have marched into the coal-fueled nickel sector. This points to the need for examining the entanglements between transition mineral extraction and fossil-fueled energy infrastructure, in terms of how they reconfigure socio-environmental relationships, as well as the convergence and divides between environmental, agrarian, and labor justice movements.

As much as the energy transition debates point to the future, coal's presence is deeply embedded in history. Many of the socio-ecological scars and various forms of toxicity from coal mining and coal-based industries have been refracted and carried over into the present from the not-so-distant past. Further research could be conducted to investigate the entanglements of local and regional history with coal, including the transformed ecological landscapes and altered socio-cultural relationships at coal extraction frontiers like Huainan (as mentioned in section 2.5.2), which has a semi-colonial history with its coal mines occupied by Japan between 1938 and 1945, and develop a comparative perspective in connection to its recent coal sector development.

This thesis focuses on China, but it also shows how China's coal-fueled economy is embedded the global industrial capitalist system. Instead of taking a Chinese exceptionalism lens, I also see the need to look beyond China and the Belt and Road Initiative, to understand anti-coal movements around the world in different socio-political contexts across space and temporality. There have been some attempts (e.g., Owen et al. 2017), but they are still relatively fragmented in terms of geographical coverage. In addition, some creative and innovative forms of contention have been used across locations, for example, art has been playing an important role in environmental movements in both China and Indonesia as mentioned in the thesis. These manifest the potential for the EJAtlas to be further expanded based on the ever-growing environmental and climate justice movements and support such knowledge co-production.

Epilogue

"No control is absolute. Power at its most menacing and totalising is also insecure and unsustainable. I hold no illusions about the long night ahead, but each refusal of injustice preserves an opening. Every act of rebellion, however spectacular or humble, is a reclamation of the self and a love letter to a stranger. Across the darkness, another searching gaze catches the flicker, and a sacred bond is cast: I see you. I feel you. We are still here."

Yangyang Cheng (2022)

On the first day of my fieldwork in China in the summer of 2021, I visited the local government officials responsible for occupational health and safety with the NGO that I was collaborating with as a volunteer. The government official that met with us was rather direct and harsh when he heard that two of the volunteers were PhD researchers: "Have you even been to any coal mine before? You can breathe the cool air in a room with air conditioner here, but not the coal miners. Practice brings real knowledge. Nowadays the legislation is made by the elites, who will never suffer from black lung disease. We are all 'standing on the shore', only black lung disease patients and their families are 'in the water'."

This inconvenient comment struck me and stuck with me as I went on with my fieldwork and research. After all, I did visit numerous coal mining sites, met happy and unhappy villagers, breathed the air in coal towns (though admittedly I bought bottled water instead of drinking the local water in the coal mining town that suffered from water pollution). I even applied scholar-activism in practice through sharing my research and resources with communities and NGOs in support of their efforts on social and environmental justice.

Many of the case studies in this thesis may seem local and "mild". They are not as grand as Greta Thunberg's climate strike or Ende Gelände in Germany. But behind each one entails much courage of those that dared to speak up and act. As Cheng wrote, "each refusal of injustice preserves an opening". Working on this thesis and witnessing the end of the Covid-19 control in China, also trained me to be more patient towards humble movements and gradual changes, and to not lose hope in justice.

This thesis has an end. But I hope the knowledge co-produced in this thesis will continue its journey to serve not only those that "stand on the shore", but also those "in the water".

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List of publications, conference presentations and other communications

Published peer reviewed article

Gu, Bowen, 2024. Black gold and green BRI–A grounded analysis of Chinese investment in coal-fired power plants in Indonesia. Extr. Ind. Soc. 17. https://doi.org/10.1016/j.exis.2024.101411

Articles submitted or under review

"Eliciting valuation contests through coal-related environmental public interest litigation (PIL) in China" submitted to *Journal of Business Ethics* in January 2024, under review.

"The black gold rush: environmental justice on the coal frontiers in China" submitted to *Ecological Economics* in March 2024.

Articles to be submitted

"Coal-powered land grabbing – agrarian struggles and environmental justice at nickel frontiers in Indonesia" will be submitted to the Special Issue of the *Journal of Agrarian Change* on "Land and Labour in Indonesia".

"Coal and toxic coloniality – perspectives from the past and present of Huainan" will be submitted to the conference *Mapping Toxic Coloniality: Perspectives from Africa, Asia, and Latin America* to be hosted at the University of Groningen in November 2024.

Book chapter

Chapter "Unburnable Coal and Unlabelled Climate Activism in China" for the "Routledge Handbook of Grassroots Climate Activism" has been submitted to the publisher, under review.

Chapter "The contested coal-fired power in the Belt and Road Initiative - Indonesia as a case study" for an edited volume on China's BRI has been submitted to the volume editor, under review.

Workshop organization

Co-organized the workshop *Silk Road Cities and beyond: New dialogues on the urban geographies of infrastructure-led development* at ICTA, UAB in March 2023.

Conference presentations

- November 2021: Presented "Unburnable coal and climate justice in China" as part of the Global Extractivism-Energy Theme panel at the EXALT Conference 2021 (online)
- May 2022: Presented "Environmental Public interest litigation (PIL) – a legal pathway for environmental justice and energy transition in China?", as part of Environmental and social energy justice panel at VII Tarragona International Environmental Law Colloquium (TIEC) (Tarragona, Spain)
- June 2022: Presented "The contested coal-based growth in the Belt and Road Initiative - Indonesia as a case study" at the summer course Political Ecology of Scarcity, Limits and Degrowth at NMBU (As, Norway)
- July 2022: Presented "Black gold and green growth – environmental justice in China's coal-based economy", as part of "Sustainable Development" panel at the 1st International Conference on the Chinese Development Model at Ramon Llull University (Barcelona, Spain)
- October 2022: Presented "Black Gold and Yellow River– tracing environmental justice in China's coal-based Economy" at the TRACTS Network Workshop *Tracing (climate) crisis, visualizing change* (Madrid, Spain)
- November 2022: Presented "The Black Gold Rush - environmental justice on the coal frontiers in Inner Mongolia" at the Australia National University Mongolia Institute seminar (online)
- December 2022: Participated in the Journal of Peasant Studies (JPS) Writeshop and presented the paper "Black Gold and Green Growth – Environmental Justice in China's Coal-based Economy" (Cape Town, South Africa)
- September 2023: Presented "The black gold rush: agrarian struggles and environmental justice on coal frontiers in the Yellow River basin" at the conference *Critical Agrarian Studies in the 21st Century* (Beijing, China)

Awards and grants obtained during the PhD

- **Spanish government FPI scholarship** Supported 4-year PhD research and research visits
- **UAB Solidarity Fund (March 2021)** Supported the fieldwork in China during July-November 2021
- **ICTA-UAB Maria de Maeztu (MdM) grant for summer course (June 2022)** Supported attending the course *Political Ecology of Scarcity, Limits and Degrowth* at NMBU, Norway.
- **Best Paper Award (July 2022)** at the International Conference on the Chinese Development Model at IQS, Ramon Lull University (Barcelona, Spain)
- **ICTA-UAB MdM grant for research visit (February 2023)** Supported the research visit at China Agricultural University in February-March 2023, including hosting a seminar at the China Agricultural University and meeting with environmental NGOs and academics in China.
- **Landhaus fellowship (April 2023)** Supported the research visit at the Rachel Carson Center, Ludwig Maximilian University of Munich, Germany, including thesis writing and stay at the Herrmannsdorf organic pig farm, presenting own research at the Lunchtime Colloquium, sharing EJAtlas methodology at Work in Progress session, and the participation in the China in the Worldmaking workshop.